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Agroalimentaire Canada

An Overview of the Canadian Agriculture and Agri-Food System

2009

Canada

An Overview of the Canadian Agriculture and Agri-Food System

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This publication comprises data and analysis provided by all four divisions of the Research and Analysis Directorate as well as contributions from other Divisions and Branches of Agriculture and Agri-Food Canada particularly the Food Value Chain Bureau.

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Note to Readers

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FOREWORD

This 2009 report provides an economic overview of the Canadian agriculture and agri-food system.

It is meant to be a multi-purpose reference document to provide:

- an introduction to the agriculture and agri-food system;
- a snapshot of structural changes that are occurring throughout the system in response to various factors; and
- background data and information to inform public discussions on challenges and opportunities facing the Canadian agriculture and agri-food system.

Charts and tables with brief accompanying texts are used to summarize information and to provide base performance indicators.

The 2009 report begins with a special feature which describes indicators to benchmark competitiveness of the Canadian agriculture and agri-food sector at the beginning of Growing Forward. This includes indicators of long run sales growth in domestic and international markets and relative profitability. It also presents some of the key factors determining competitiveness in the sector.

It continues by reviewing each segment of the system, going upstream from consumers to food distribution, food and beverage (FB) processing, primary agriculture, and input suppliers. It also contains a section that considers the natural resources available in Canada and the environmental impacts of agriculture on those resources. It concludes with a review of government expenditures in support of agriculture, including international comparisons of measures of support.

It describes the Canadian agriculture and agri-food system as a highly complex, integrated, internationally competitive and growing part of the Canadian economy. It is a resilient system, responding to the challenges and opportunities it faces by restructuring and adapting to changing consumer demands, advancing technology, increased demand for bioproducts and functional foods and natural health (FFNH) products, North American integration and globalization.

HIGHLIGHTS

- The agriculture and agri-food system encompasses several industries including the farm input and service supplier industries, primary agriculture, food, beverage and tobacco (FBT) processing, wholesale, distribution and retail food industries and foodservice.
- It continues to play an important role in the federal and provincial economies, making a significant contribution to Gross Domestic Product (GDP) and employment. In 2008, it directly provided one in eight jobs and accounted for 8.1% of total GDP.
- While primary agriculture accounts for a small share of the total economy, it is at the heart of the agriculture and agri-food system. Any changes in commodity markets can therefore have impacts on the performance of primary agriculture and the whole supply chain.
- The performance of the agriculture and agri-food system has been heavily influenced by developments over the past two years, which saw crude oil and commodity prices rise sharply to record levels in July 2008, followed by price declines in 2009 in the wake of a serious global financial crisis and recession and record crops.
- Increased volatility in commodity markets and exchange rates have added to the heightened increased uncertainty associated with marketing agriculture and agri-food products in Canada and around the world.
- Export opportunities are critical for the growth of most Canadian agriculture and agri-food industries. In 2008, Canada was the fourth-largest exporter and sixth-largest importer of agriculture and agri-food products in the world, with exports and imports valued at $38.8 billion and $24.9 billion, respectively. Recent volatility in commodity markets and the exchange rate have affected Canada's trade.
- The agriculture and agri-food system has become more internationally focussed with Canada's share of world agriculture and agri-food trade increasing over the past 15 years in response to trade liberalization and global economic growth. The composition of the agriculture and agri-food system's trade has also changed with increasing exports of higher value-added goods that meet changing global demands and societal concerns.
- The prosperity of the sector depends on its ability to remain competitive and viable. Competitiveness is a comparative notion defined as the ability to produce profitably and to maintain long-run viability in relation to competitors for relevant markets. Competitiveness indicators such as long-run sales growth in domestic and international markets and relative profitability measures prior to Growing Forward, show how Canada remained relatively competitive in markets for agriculture and agri-food processing products in 2008.
- Innovation is a key factor in determining competitiveness, with public and private spending on research and development (R&D) – a major input into innovation. Public R&D spending in the agriculture and agri-food sector has been decreasing over time as a share of output, but this share still remains higher than in the U.S. Private R&D spending as a share of GDP in the food manufacturing industry continues to be significantly lower than that of total manufacturing and below that in other countries.

- The agriculture and agri-food sector is benefitting from the development of innovative products such as bioproducts and functional foods and natural health (FFNH) products that provide excellent market opportunities to diversify and introduce new products that respond to societal concerns in an increasingly-competitive global market.
- Changing consumer and societal demands are influencing changes throughout the whole agriculture and agri-food system. Consumers are demanding more variety, more convenience, more environmentally-friendly and healthier food choices, accompanied by proper assurances of quality and safety.
- Canadians enjoy some of the lowest food costs in the world, with food from stores accounting for only 10% of personal household expenditures in recent years.
- The food, beverage and tobacco (FBT) processing sector is a group of industries that transforms primary production, and is the second most important manufacturing sector in Canada. It is important for the agriculture industry, since 44% of agricultural production is used as raw material inputs by this industry.
- FBT processing experienced growth in 2008 leading to higher GDP, but higher input costs are squeezing margins due to higher prices and volatile exchange rates and forcing the sector to adjust their business strategies.
- In response to challenges and changing market conditions, the agricultural sector has gone through considerable transformation and has continued to restructure towards fewer, larger farms. There is also an increasing number of farms diversifying production, growing organic products and adopting environmentally-friendly production methods.
- Canadian farms differ by size, scale, farm type and typology, while farm operators differ by management skills and business strategies. Therefore, differences in performance between farms can be explained by this diversity. Some farm families rely more on off-farm income to help them manage uncertainty due to production and marketing risks.
- Input suppliers and service providers also perform important functions in the agriculture and agri-food system. In 2008, producers spent over $38 billion in operating expenses, with commercial feed constituting the largest part of expenses. In addition to already large input expenses, recent increases in the costs of fuel, fertilizer and pesticides are putting added pressure on farmers. Higher feed costs due to sharply higher grain and oilseed prices in 2008 added to the financial pressures for livestock farms in particular.
- Total government (federal and provincial) support to the agriculture and agri-food sector increased slightly from 2007-2008 to reach an estimated $7.9 billion in 2008-2009 or 30% of total sector GDP.
- Program payments continue to account for the largest portion of both federal and provincial government expenditures in support of the sector in 2008-2009, followed by spending on research and inspection.
- Government support to the sector varies across provinces. On the basis of government support as a percentage of agriculture and agri-food GDP, farmers in Newfoundland and Labrador, Quebec, Nova Scotia and Manitoba received the most support.
- Agricultural policies in Canada and other countries have evolved over time. Some countries have made major reforms to their agricultural policies, leading to reductions in levels of support and modifications to the types of support provided.
- Canada's Producer Support Estimate (PSE) for all commodities was estimated at 13% in 2008, compared to 7% for the U.S. and 25% for the EU. In 2008, the percentage PSE declined for the main OECD countries mainly because of increased gross farm receipts and reduced market price support due to higher world prices.

SECTION A

Special Feature

SECTION A1

Benchmarking Competitiveness

The new agricultural policy framework, Growing Forward, has established policies and programs that will be in place until 2012/2013. A strategic outcome at which Growing Forward is aimed is a competitive and innovative sector. This section provides information that can be used to benchmark the competitiveness of the sector prior to the introduction of Growing Forward.

Competitiveness is a comparative notion defined in this section as “the ability to produce profitably and to maintain long-run viability, in relation to competitors, for relevant markets”. There are several types of indicators that could be used to quantify competitiveness according to this definition. Possible indicators of competitiveness include long run sales growth in domestic and international markets and sustained profitability relative to key competitors. Potential factors, or determinants, that may explain competitiveness are also discussed. These include changes in relative variable costs, relative total factor productivity growth and relative growth in public R&D investments.

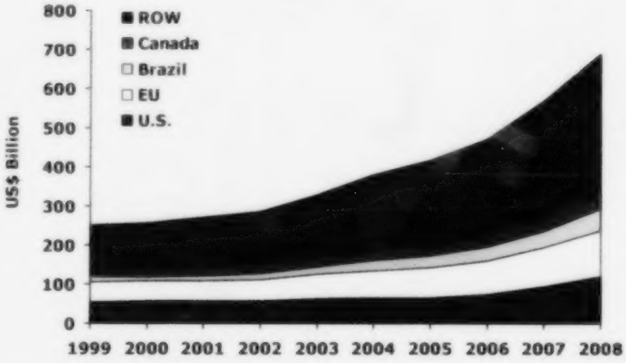
This section quantifies these indicators and determinants of competitiveness for the agriculture and agri-food sector as a whole, the primary agriculture sector and the food and beverage processing industry.

The ability of Canada's agriculture and agri-food sector to maintain a presence in world markets is one indicator of competitiveness

- **Canada's share of world agricultural and agri-food trade remained relatively constant, around 5.5%, as our exports grew in line with world exports to US$38.8 billion between 1999 and 2008.**

This is in contrast to the U.S., which saw its share of world exports decline over time even as its exports grew. Other countries, such as Brazil, saw their share of world exports expand. Brazil's exports totalled US$58 billion in 2008.

Chart A1.1
World Agricultural and Agri-Food Exports
1999-2008



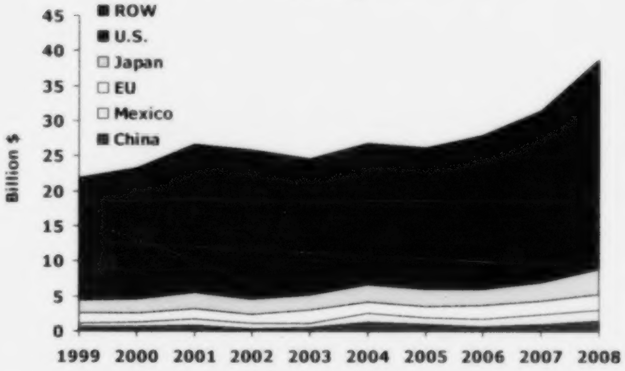
Source: Global Trade Atlas and AAFC calculations.
Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.

- **On average, roughly half of Canada's total agricultural and agri-food exports were destined for the U.S.**

Canada's agricultural and agri-food exports increased over the past decade to $38.8 billion in 2008.

On average, processed products accounted for 57% of total agricultural and agri-food exports, although this share fell in 2007 and 2008 due to higher world prices for bulk commodities.

Chart A1.2
Destinations of Canadian Agricultural and Agri-Food Exports
1999-2008



Source: Statistics Canada and AAFC calculations.

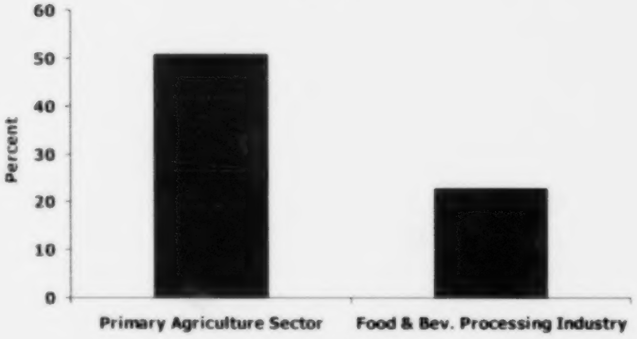
The definition of relevant markets and competitors is critical in interpreting measures of competitiveness for both primary agriculture and food and beverage processing

- **Measures of export orientation indicate that export markets have been relatively more important for the primary sector than the food and beverage processing industry.**

Just over 50% of Canada's primary agriculture production was exported in 2008 compared to roughly 23% for the food and beverage processing industry.

Trade figures tell a compelling story about the competitiveness of Canadian primary agriculture, given the importance of exports to the sector.

Chart A1.3
Export Orientation of Canada's Primary Agriculture Sector and Food and Beverage Processing Industry
2008



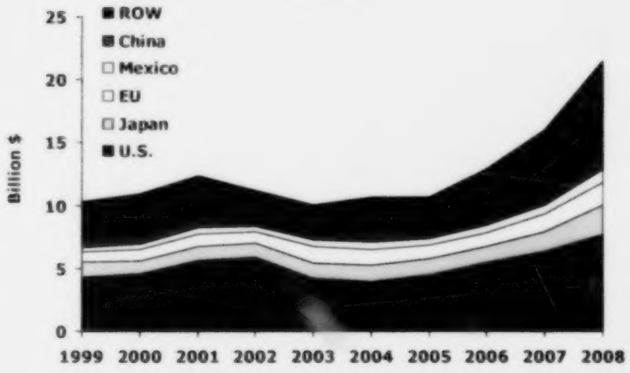
Source: Statistics Canada and AAFC calculations.

- **Canadian primary agriculture exports grew rapidly in 2007 and 2008.**

This export growth was due in large part to greater export values of grains and oilseeds at a time of higher global prices for these commodities.

The major export market has historically been the U.S., although export growth occurred in other markets, such as Japan, the EU, China and Mexico since 2005.

Chart A1.4
Destinations of Canadian Primary Agriculture Exports
1999-2008



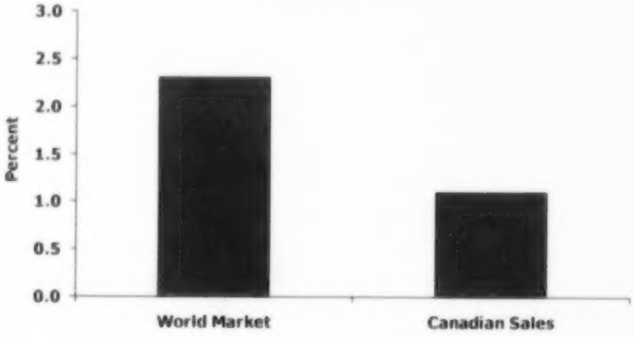
Source: Statistics Canada and AAFC calculations.

Canada's presence in international and domestic crop and livestock markets provide an indication of the primary agriculture sector's competitiveness

- **Canada's presence in world crop markets decreased on average between 1998 and 2007, indicating a decline in competitiveness.**

  Canada exports crops to a diverse range of countries around the world. While the size of this world crop market grew at an average annual rate of 2.3%, Canadian crop sales to the combined domestic and export market grew at an average annual rate of 1.1%.

Chart A1.5
Average Annual Growth in Canadian Crop Sales and World Market Size
1998-2007

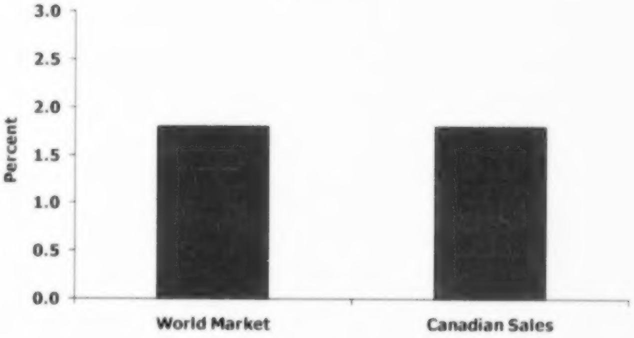


Source: Food and Agriculture Organization of the United Nations (FAO).

- **Canada maintained its presence in world livestock markets between 1998 and 2007, indicating that the sector remains competitive.**

  Canadian sales of livestock to the combined domestic and export market grew at an average annual rate of 1.8%, which was the same pace as growth seen in the world livestock market.

Chart A1.6
Average Annual Growth in Canadian Livestock Sales and World Market Size
1998-2007



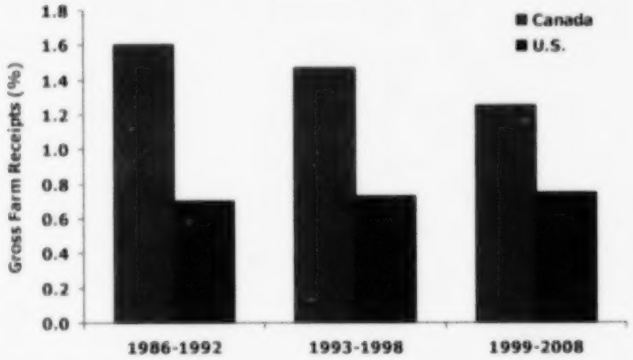
Source: Food and Agriculture Organization of the United Nations (FAO).

Potential factors determining the Canadian primary agriculture sector's competitiveness includes relative R&D investments and productivity growth

- **Canada's public R&D spending in the agriculture and agri-food sector declined as a share of gross farm receipts from an average of 1.6% between 1986 and 1992 to 1.3% between 1999 and 2008.**

In the period from 1999 to 2008, Canadian public sector R&D as a share of gross farm receipts was higher than that in the U.S. The average share in the U.S. has remained in the 0.7% range over the past twenty years.

Chart A1.7
Public R&D Support to the Agriculture and Agri-Food Sector
1986-2008*

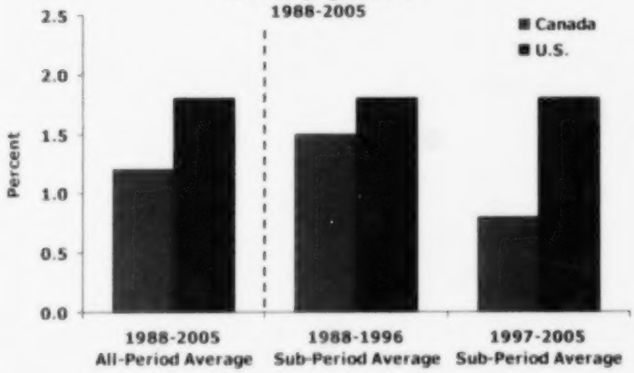


Source: OECD Agricultural Policies in OECD Countries: Monitoring and Evaluation 2009.
Note: *Data for 2008 is preliminary.

- **Average annual productivity growth in Canadian primary agriculture has consistently lagged that of the U.S. and has fallen recently.**

Over the period between 1988 and 2005, the average annual productivity growth rate in Canada was about 1.2% versus 1.8% in the U.S. When viewed in terms of the two sub-periods, productivity growth was similar to the U.S. between 1988 and 1996, but considerably lower between 1997 and 2005.

Chart A1.8
Canadian and U.S. Total Factor Productivity Growth
in Primary Agriculture
1988-2005



Source: Statistics Canada and USDA (ERS).
Note: These are geometric mean growth rates for gross output total factor productivity indexes.

The next set of charts examines the competitiveness of the Canadian food and beverage industry both as a whole and by sub-industry. The first chart on each page shows the destinations of Canadian shipments for the industry, where these are divided into shipments to Canada, the U.S. and the Rest of the World (ROW). In some cases, exports to the BRIC (Brazil, Russia, India and China) countries are also shown. The data shows that Canada has been the most important market, followed by the U.S., for most sub-industries. The second chart on each page focuses on the Canada-U.S. market, showing the apparent size of this market and the value of Canadian shipments sold within it. This gives a measure of potential sales and the Canadian industry's presence within this market.

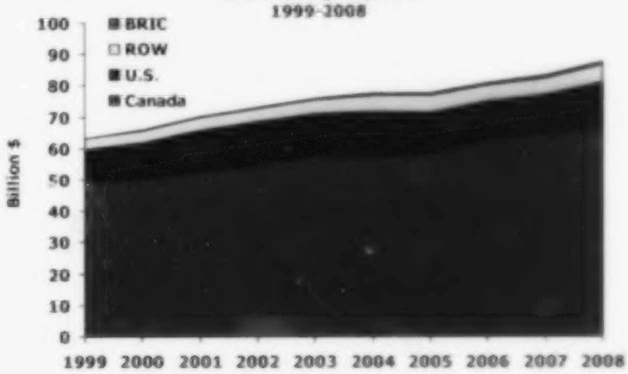
Under NAFTA, Canadian firms have access to U.S. markets, whether or not they choose to compete there. This choice depends on the perceived risks (e.g., foreign exchange and regulations) that may result in higher or lower profits than those derived from selling domestically. For a given industry, the potential for sales changes as the overall Canada-U.S. market expands or contracts. The word "apparent" refers to the fact that the size of the market here is an estimate.

The Canadian food and beverage manufacturing industry has competed mainly within the Canada-U.S. market

- **Total Canadian food and beverage manufacturing shipments grew by $24.4 billion between 1999 and 2008 to $87.7 billion, with $17.9 billion accounted for by sales to the domestic market.**

The U.S., with a domestic market worth roughly US$600 billion, accounted for $3.3 billion in sales growth and continued to be the most important destination for Canadian processed food and beverage products. Taken together, shipments to Canada and the U.S. markets accounted for more than four-fifths of all sales.

Chart A1.9
Destinations of Canadian Food and Beverage Manufacturing Shipments
1999-2008

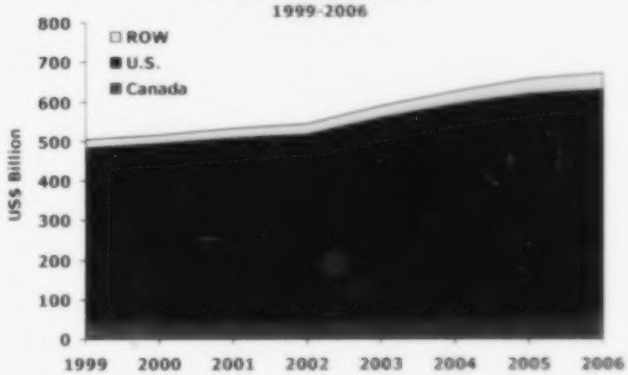


Source: Statistics Canada and AAFC calculations.

- **The apparent size of the Canada-U.S. market grew by US$167 billion to US$672 billion between 1999 and 2006.**

Canadian shipments to the Canada-U.S. market grew by US$26 billion to US$65 billion over this period, with most of this sales growth occurring within Canada.

Chart A1.10
Origins of Manufactured Food and Beverage Products Sold in the Canada-U.S. Market
1999-2006



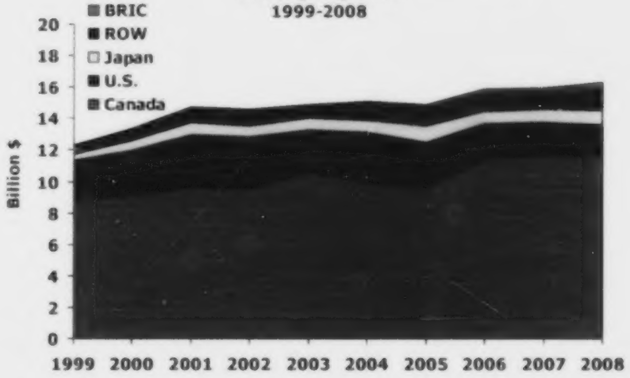
Source: Statistics Canada, U.S. International Trade Commission, U.S. Bureau of Economic Analysis and AAFC calculations.

By sub-industry, most Canadian red meat processing industry sales were destined for the growing Canada-U.S. market, although exports to other markets increased as well

- **Shipments rose by $3.9 billion to $16.3 billion between 1999 and 2008 with growth of $2.8 billion in domestic shipments and growth of $1.6 billion in exports to non-U.S. markets, such as Japan and Russia.**

  While the U.S. was the primary export destination for Canadian processed red meat products, accounting for 10% of total shipments in 2008, shipments to the U.S. fell by $459 million between 1999 and 2008 to $2.0 billion.

Chart A1.11
Destinations of Canadian Red Meat Processing* Industry Shipments
1999-2008

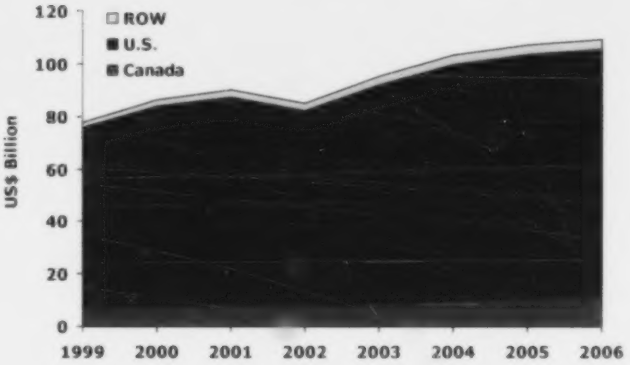


Source: Statistics Canada, Industry Canada and AAFC calculations.
Note: *Includes animal slaughtering and processing.

- **The apparent size of the Canada-U.S. market grew by US$31.4 billion to US$109.2 billion between 1999 and 2006.**

  Canadian firms took advantage of domestic market growth to maintain an average 10% share of the Canada-U.S. market. By maintaining its share in a growing market, Canada's red meat processing industry remained competitive.

Chart A1.12
Origins of Red Meat Products Sold in the Canada-U.S. Market
1999-2006



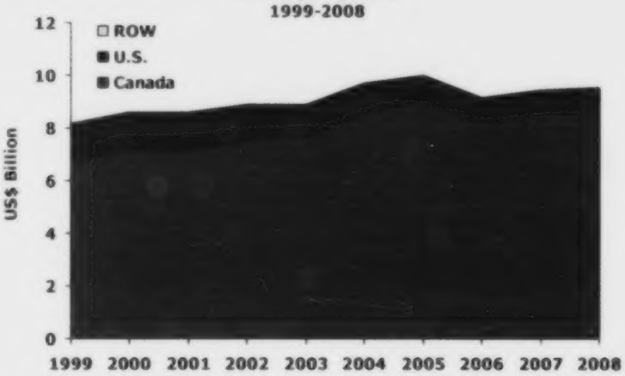
Source: Statistics Canada, U.S. International Trade Commission, U.S. Bureau of Economic Analysis and AAFC calculations.

The beverage manufacturing industry has been a growing Canadian industry that produces primarily for the domestic market but has faced competition from non-U.S. imports

- **Growth in Canadian beverage shipments to the domestic market more than offset declining sales to the U.S. over the past decade.**

Total shipments grew by $1.3 billion to $9.5 billion between 1999 and 2008, despite exports to the U.S. falling by $558 million to $766 million.

Chart A1.13
Destinations of Canadian Beverage* Manufacturing Industry Shipments
1999-2008

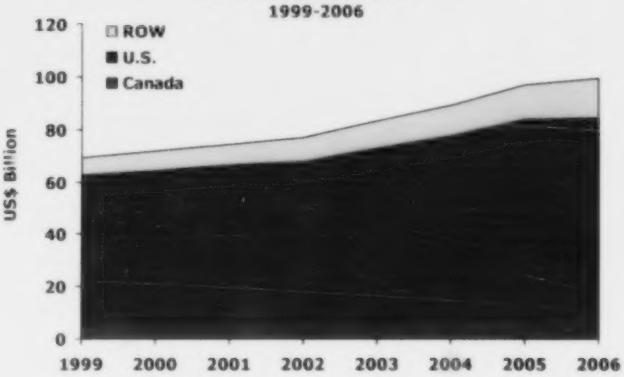


Source: Statistics Canada and AAFC calculations.
Note: *Includes soft drinks and alcoholic beverages.

- **The Canadian beverage manufacturing industry maintained an 8% share of the apparent Canada-U.S. market, which grew in size by US$30 billion to US$99 billion. Therefore, the industry appears to have remained competitive.**

Competition mainly came from outside of Canada and the U.S. In 2006, imports from other countries accounted for 15% of sales in the Canada-U.S. market, up from 10% in 1999.

Chart A1.14
Origins of Beverage Products Sold in the Canada-U.S. Market*
1999-2006



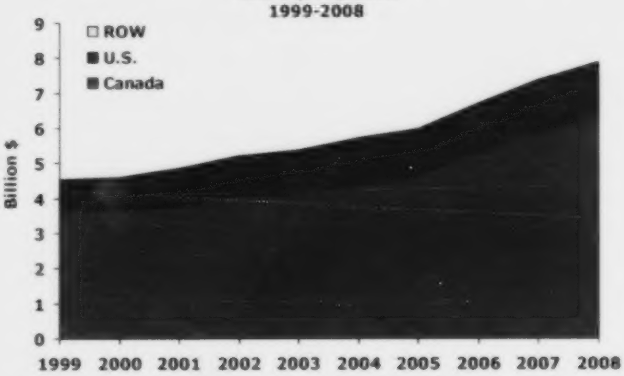
Source: Statistics Canada, U.S. International Trade Commission, U.S. Bureau of Economic Analysis and AAFC calculations.
Note: *Includes soft drinks and alcoholic beverages.

The Canadian bakery and tortilla manufacturing industry took advantage of growing markets in both Canada and the U.S.

- **Shipments increased by $3.4 billion to $7.9 billion between 1999 and 2008.**

  About four-fifths of all sales were domestic, while one-fifth were sales to the U.S. These shares remained fairly constant over the past decade.

Chart A1.15
Destinations of Canadian Bakery and Tortilla Manufacturing Industry Shipments
1999-2008



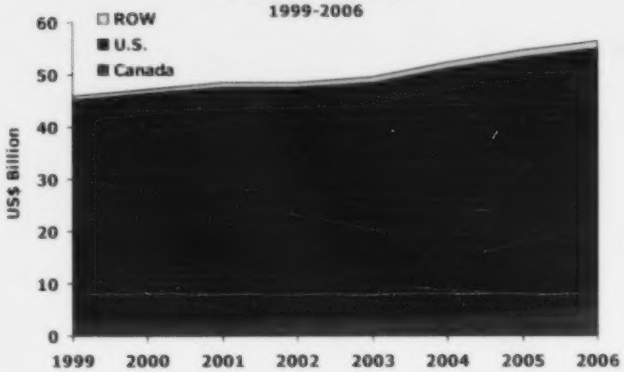
Source: Statistics Canada and AAFC calculations.

- **The apparent size of the Canada-U.S. market grew by US$10.5 billion to US$56.4 billion, with one-quarter of this growth occurring within Canada.**

  With sales growth of US$2.2 billion in Canada and US$631 million in the U.S., the Canadian industry's share of the Canada-U.S. market rose from 7% in 1999 to 10% in 2006.

  A growing share in a growing market appears to indicate that Canada's bakery and tortilla industry has been increasingly competitive.

Chart A1.16
Origins of Bakery and Tortilla Products Sold in the Canada-U.S. Market
1999-2006



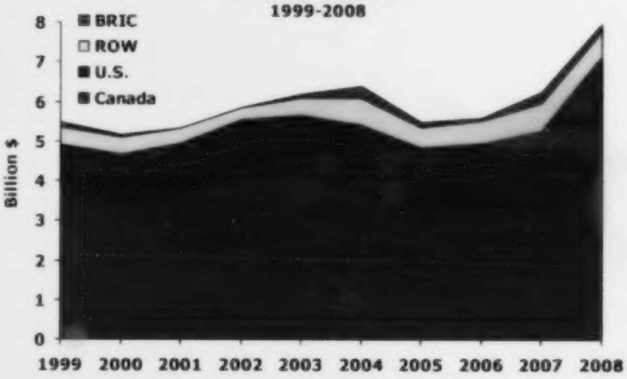
Source: Statistics Canada, U.S. International Trade Commission, U.S. Bureau of Economic Analysis and AAFC calculations.

Some industries, such as the grain and oilseed milling industry, were able to take advantage of opportunities in the U.S. when they appeared, such as during the recent period of high grain prices

- **Total shipments averaged $5.6 billion annually between 1999 and 2006 before climbing to $7.8 billion in 2008.**

While exports to the U.S. as a percentage of total shipments increased gradually up to 2005, this proportion rose sharply from 29% in 2006 to 40% in 2008. Over this two-year period, exports to the U.S. rose by $1.5 billion to $3.1 billion in 2008. Domestic sales were $4.0 billion in 2008.

Chart A1.17
Destinations of Canadian Grain and Oilseed Milling Industry Shipments
1999-2008

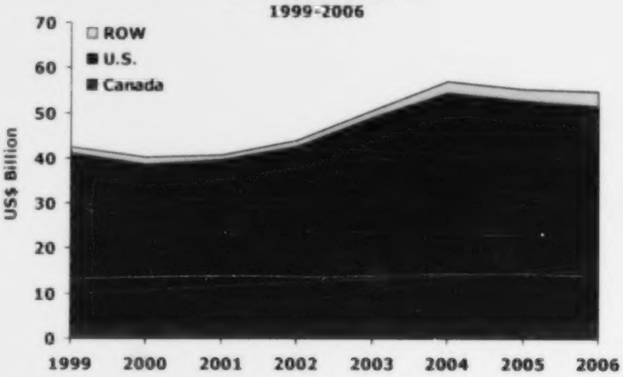


Source: Statistics Canada and AAFC calculations.

- **The Canada-U.S. market grew by US$12.3 billion to US$54 billion between 1999 and 2006. Roughly US$1 billion of this increase was accounted for by the Canadian industry, with domestic sales increasing by US$424 million and exports to the U.S. rising by US$602 million.**

A relatively stable 8% share of the Canada-U.S. market indicates that Canada's grain and oilseed industry has remained competitive.

Chart A1.18
Origins of Grain and Oilseed Products Sold in the Canada-U.S. Market
1999-2006



Source: Statistics Canada, U.S. International Trade Commission, U.S. Bureau of Economic Analysis and AAFC calculations.

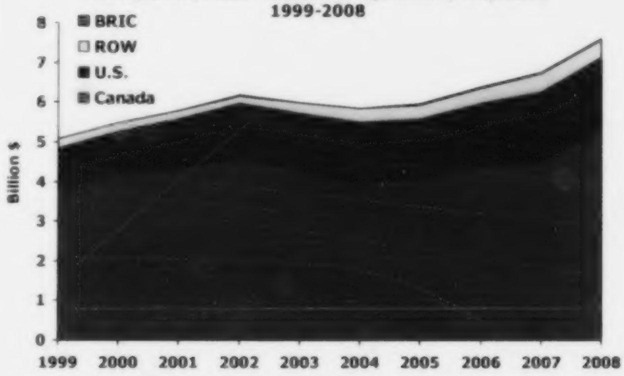
Canada's fruit and vegetable preserving and specialty food manufacturing industry took advantage of growth opportunities in both Canada and the U.S.

- **Shipments grew by $2.5 billion between 1999 and 2008 to $7.6 billion. Most of this growth was accounted for by higher sales within Canada and the U.S., but exports to the rest of the world contributed to some of this growth.**

  The industry focussed increasingly on the U.S. market with exports to the U.S., as a percentage of total shipments, rising from 19% to 24% between 1999 and 2008.

  Roughly two-thirds of industry shipments were frozen food products.

Chart A1.19
Destinations of Canadian Fruit and Vegetable Preserving and Specialty Food* Manufacturing Industry Shipments
1999-2008



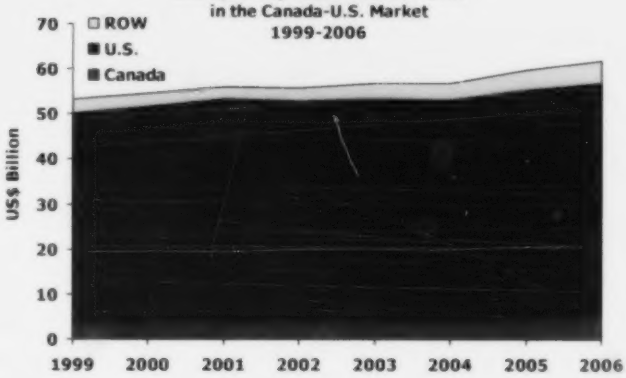
Source: Statistics Canada and AAFC calculations.
Note: *Includes frozen food.

- **The apparent size of the Canada-U.S. market grew by US$8.6 billion to US$61.9 billion between 1999 and 2006 with US$2 billion of this growth occurring within Canada.**

  At the same time, the Canadian industry took advantage of market growth in the U.S. with a US$731 million increase in exports.

  A Canada-U.S. market share rising from 6% to 8% indicates an apparent increase in industry competitiveness.

Chart A1.20
Origins of Fruit and Vegetable Preserving and Specialty Food Products* Sold in the Canada-U.S. Market
1999-2006



Source: Statistics Canada, U.S. International Trade Commission, U.S. Bureau of Economic Analysis and AAFC calculations.
Note: *Includes frozen food.

Lerner Indexes

A short-run Lerner index (L) is a measure of profitability calculated using data for revenue (R), variable cost (VC) and an output price index (P). Variable costs provide a short-run measure of total cost since they do not include a return to fixed factors of production such as machinery and equipment. To construct a short-run Lerner index with data for R, VC and P, an output quantity index (Q) was derived using the formula $Q= R/P$, then calculate an index of average variable cost (AVC) was calculated using the formula $AVC=VC/Q$. The short-run Lerner index is then calculated as $L=(P-AVC)/P$, which is the proportion of the output price that is short-run profit; L equivalently is the proportion of revenue that is available as a return to fixed factors. Normally, a Lerner index is measured using marginal cost rather than average cost; here, AVC is assumed to be an acceptable proxy for short-run marginal cost.

Growth in the short-run Lerner index may be viewed as an indicator of competitiveness since, when this index grows, it means that profitability of a firm or industry has improved in the short run, suggesting that it can weather a decline in output prices or an increase in input costs within any given year. Growth in L also means that a higher proportion of revenue can be used to pay for the fixed factors, which may have increased, decreased or stayed the same. If the short-run Lerner index for one particular firm is growing more rapidly than that of all other firms, that one firm may be viewed as having increased its competitiveness, relative to other firms. Similarly, when comparing one particular industry to another in the same country or in another country, that industry may be viewed as having increased its competitiveness if its short-run Lerner index has grown more rapidly than that of its counterparts.

Here, for any food processing sub-industry, growth in Canada's competitiveness is measured as an increase in the ratio of the Canadian industry's Lerner index to that of the U.S. industry's Lerner index. This growth is illustrated graphically for four sub-industries in the two charts that follow. An increase in competitiveness of Canadian industry is shown by a rise in the index above 1.

Competitiveness can be measured in terms of growth rates in relative profitability for Canadian and U.S. food processing industries

- **The Canadian grain and oilseed milling and fruit and vegetable processing industries appear to have been competitive in relation to their U.S. counterparts.**

Between 1999 and 2006, the ratio of the two indexes was close to 'one' on average for both industries, with the fruit and vegetable processing industry performing slightly better than the grain and oilseed milling industry. According to this indicator, neither Canadian industry had a clear-cut advantage or disadvantage over its U.S. counterpart.

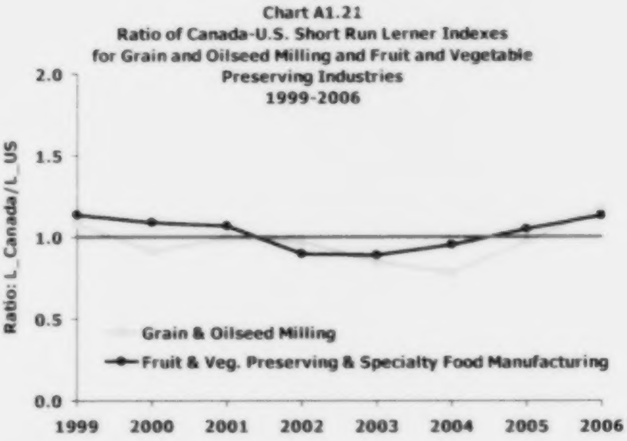


Chart A1.21
Ratio of Canada-U.S. Short Run Lerner Indexes
for Grain and Oilseed Milling and Fruit and Vegetable
Preserving Industries
1999-2006

Source: Statistics Canada, U.S. Bureau of Labor Statistics and AAFC calculations.

Note: L_Canada and L_US denote the Lerner indexes for Canada and the U.S. respectively. When this ratio is 'one' (shown by the red line), the industries are equally competitive, according to this indicator.

- **The Canadian bakery manufacturing industry was already more competitive than its U.S. counterpart in 1999, and this advantage generally grew over time.**

The same was more-or-less true of the meat product manufacturing industry, where competitiveness grew consistently from 2003 on. Between 1999 and 2006, the short-run Lerner index for the bakeries industry was on average, about 68% larger in Canada than in the U.S., while for the meat products manufacturing industry, the Canadian index was on average about 23% higher than that in the U.S. Both results indicate a substantially higher level of average short-run profitability in both Canadian industries in relation to their U.S. counterparts.

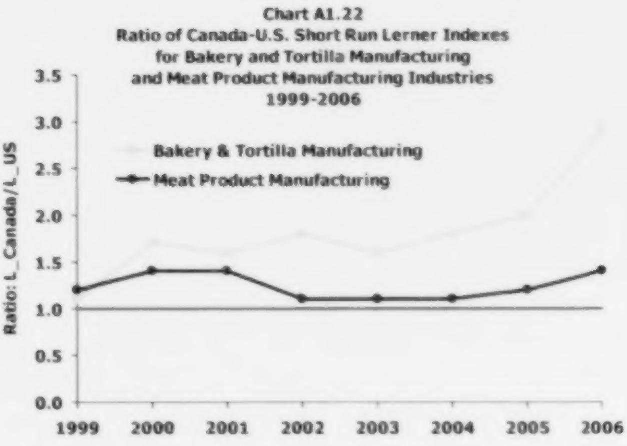


Chart A1.22
Ratio of Canada-U.S. Short Run Lerner Indexes
for Bakery and Tortilla Manufacturing
and Meat Product Manufacturing Industries
1999-2006

Source: Statistics Canada, U.S. Bureau of Labor Statistics and AAFC calculations.

Note: L_Canada and L_US denote the Lerner indexes for Canada and the U.S. respectively. When this ratio is 'one' (shown by the red line), the industries are equally competitive, according to this indicator.

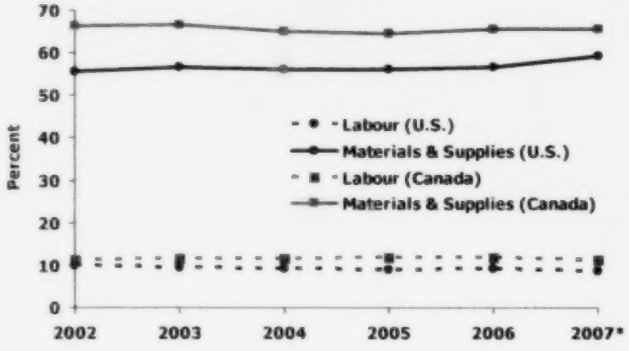
Changes in relative variable costs can be important determinants of competitiveness

- **The cost of materials and supplies is the largest component of variable cost for food processing in both the U.S. and Canada.**

Between 2002 and 2007, material and supply costs as a share of the value of shipments increased from 56% to 60% in the U.S. In Canada, this share was higher but relatively stable at 66% over the same period.

The second-largest variable cost in food processing has been labour. Over the 2002-2007 period, labour costs accounted for around 11% of the value of shipments in Canada and 10% in the U.S.

Chart A1.23
Food Processing Variable Costs as a Share of Shipments in Canada and the U.S.
2002-2007*

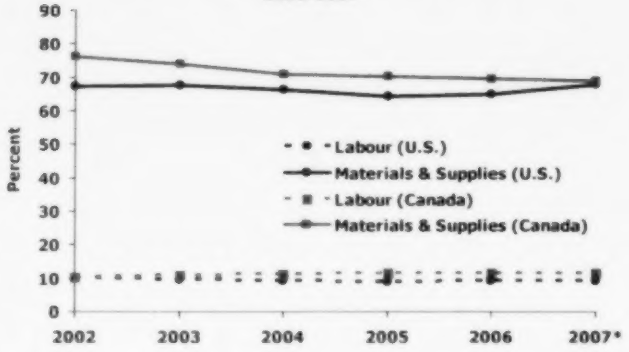


Source: Statistics Canada and the U.S. Census Bureau.
Note: *2007 data is preliminary.

- **For meat processing in particular, between 2002 and 2007, the cost of materials and supplies as a share of shipments declined from 76% to 69% in Canada, to reach almost the same share as in the U.S.**

The cost of labour represented a much smaller share of the value of shipments in both countries, with this share being somewhat higher in Canada than in the U.S. Over the period 2002 to 2007, labour costs in Canadian meat processing increased from 10% to 11.5% as a share of shipments, while they decreased from 10% to 9% in the U.S.

Chart A1.24
Food Processing Variable Costs as a Share of Meat Processing Shipments in Canada and the U.S.
2002-2007*



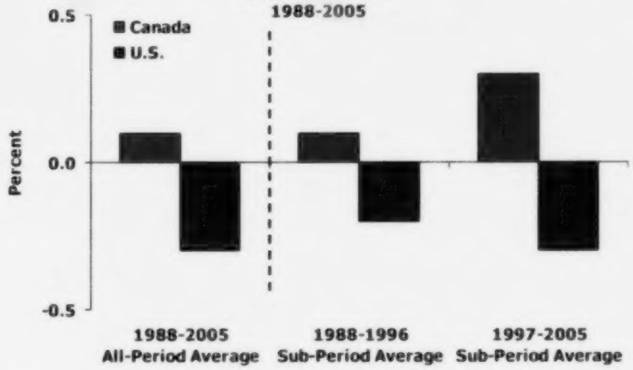
Source: Statistics Canada and the U.S. Census Bureau.
Note: *2007 data is preliminary.

Productivity growth has been low in the Canadian food, beverage and tobacco (FBT) sector, but consistently higher than in the U.S.

- **Total factor productivity growth in Canadian FBT industries averaged about 0.1% annually between 1988 and 2005.**

  Growth was higher in the 1997-2005 sub-period, averaging roughly 0.3% annually. In the U.S., total factor productivity growth averaged around -0.3% annually over the 1988-2005 period, with no significant change between sub-periods.

Chart A1.25
Productivity Growth in the FBT Industries
Canada and the U.S.
1988-2005



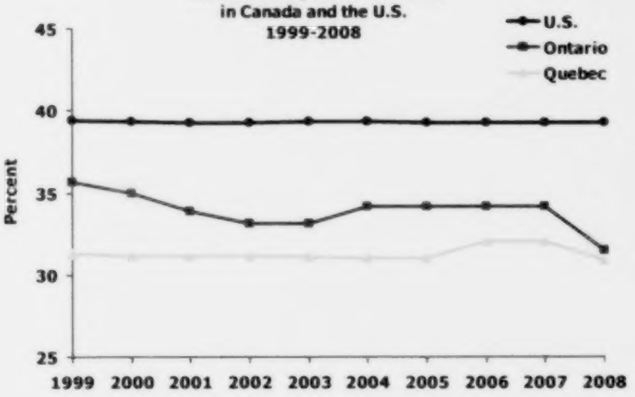
Source: Statistics Canada, U.S. Bureau of Labor Statistics and AAFC calculations.

Competitiveness may have been helped by recent reductions in corporate income tax rates

- **Combined federal-provincial income tax rates for corporations primarily involved in manufacturing in Ontario and Quebec have been lower than those faced by similar corporations in the U.S.**

  Relatively lower income tax rates in Canada mean that, for a given level of taxable income, after-tax returns in Canada were higher than in the U.S.

Chart A1.26
Combined Corporate Tax Rates in Canada and the U.S.
1999-2008



Source: OECD Tax Database and AAFC calculations.

Note: The U.S. rates reflect federal and average state corporate income tax rates.
The Canadian rates reflect federal and provincial corporate income tax rates for manufacturers and processors.

Summary

The goal of this section has been to benchmark the competitiveness of the Canadian agriculture and agri-food sector prior to the introduction of Growing Forward. The main indicator of competitiveness used is the degree to which sales growth has matched growth in the market available to each industry.

For primary agriculture, where sales to both domestic and export markets have been important and where export destinations have been quite diverse, the competitiveness indicator is quantified in terms of the combined Canadian domestic and export markets. Between 1998 and 2007, the livestock sector appears to have remained competitive with sales, measured as production, increasing at roughly the same pace as the market. The crop sector, on the other hand, saw sales increase at a slower pace than growth in the overall market, indicating a decline in competitiveness.

For food and beverage processing sub-industries, sales in the domestic market have been most important, followed by sales to the U.S. market, so the competitiveness indicator is quantified in terms of the combined Canada-U.S. market. The red meat processing, grain and oilseed products and beverage manufacturing sub-industries appear to have remained competitive between 1999 and 2006, maintaining their share of a growing Canada-U.S. market. The bakery and tortilla products and the fruit and vegetable processing/specialty food manufacturing sub-industries appear to have been increasingly competitive, with their share of sales growing in an expanding Canada-U.S. market. Indexes of short-run profitability in Canada relative to those in the U.S. Lerner indexes, provide results that are generally consistent with those measured by the sales growth indicator. The conclusion is that Canadian food and beverage manufacturing sub-industries remained competitive in the years prior to the introduction of Growing Forward.

SECTION B

The Agriculture and Agri-Food System and the Canadian Economy

SECTION B1

GDP and Employment

The Canadian agriculture and agri-food system is a complex and integrated supply chain of importance to the Canadian economy. It makes significant direct and indirect contributions to the Canadian Gross Domestic Product (GDP) and employment, but its importance varies from province to province.

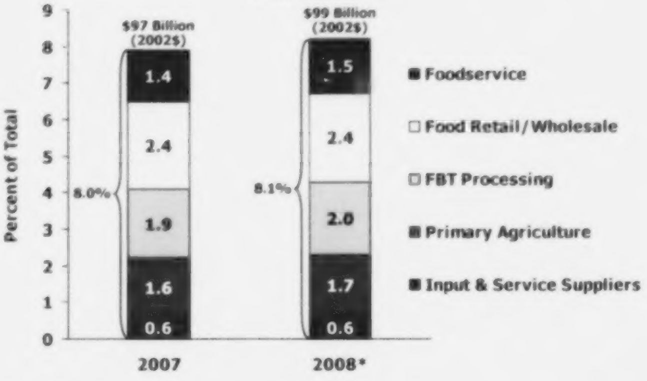
The agriculture and agri-food system plays a significant role in the Canadian economy

- **The Canadian agriculture and agri-food system accounted for 8.1% of total Canadian Gross Domestic Product (GDP) in 2008.**

  The food retail/wholesale industry was the largest contributor to the agriculture and agri-food system's GDP, followed by food, beverage and tobacco (FBT) processing.

  Primary agriculture accounted for about 1.7% of national GDP in 2008, up slightly from 2007.

Chart B1.1
Agriculture and Agri-Food System's Contribution to GDP
2007 and 2008

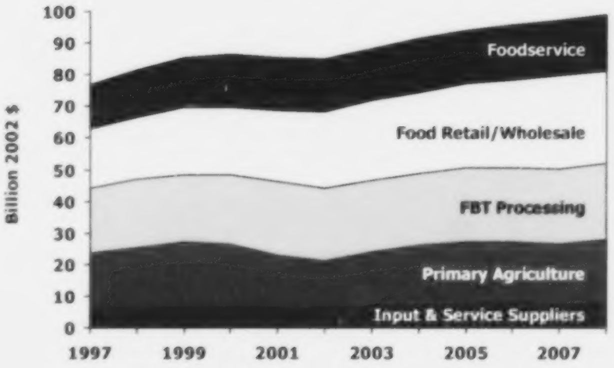


Source: Statistics Canada and AAFC calculations.
Note: *2008 data is preliminary.

- **Since 1997, the overall agriculture and agri-food system has been growing at an average annual rate of 2.4%, which is below the 3.0% growth rate of the overall economy.**

  Food retail/wholesale is the fastest growing component, with an average annual growth rate of 4.2%. Primary agriculture and FBT processing GDP grew, on average, by 1.9% and 1.5% a year, respectively.

Chart B1.2
Agriculture and Agri-Food System's Contribution to GDP
1997-2008



Source: Statistics Canada and AAFC calculations.

It also makes an important contribution to overall Canadian employment

- **The Canadian agriculture and agri-food system provided one in eight jobs in 2008, employing nearly 2.2 million people.**

In 2007 and 2008, the foodservice industry was the major employer in the agriculture and agri-food system, followed by the food retail/wholesale industry. Employment in primary agriculture continues to decline as a share of the total at 1.7%.

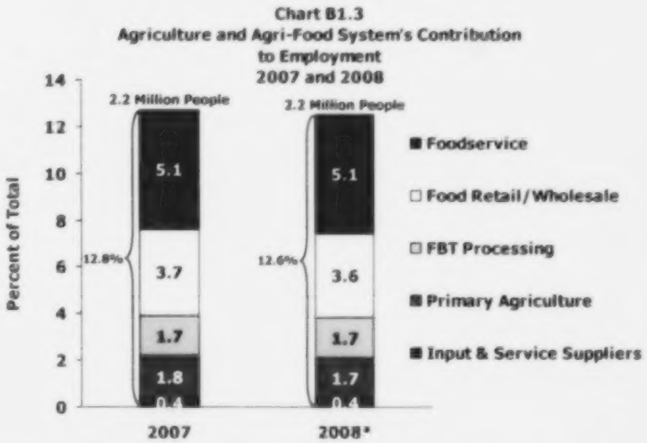


Chart B1.3
Agriculture and Agri-Food System's Contribution to Employment
2007 and 2008

Source: Statistics Canada and AAFC calculations.
Note: *2008 data is preliminary.

- **Employment in the agriculture and agri-food system has been growing at an average annual rate of 1.3% since 1997, which is below the average annual growth rate of 2.0% in the overall economy.**

Foodservice is the largest employer within the system, growing at an average annual rate of 2.2%.

Employment in primary agriculture has been declining, while food processing employment grew at an average annual rate of 1.2%.

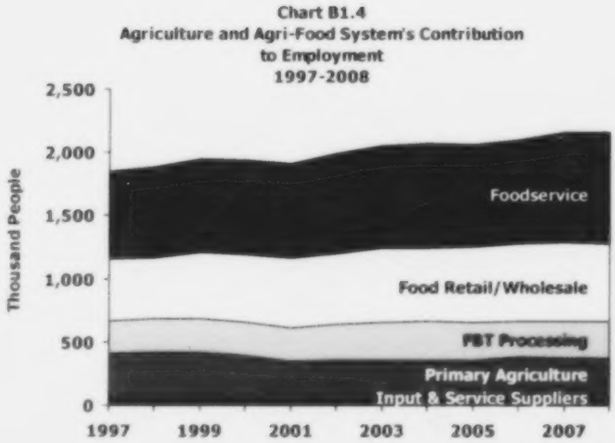


Chart B1.4
Agriculture and Agri-Food System's Contribution to Employment
1997-2008

Source: Statistics Canada and AAFC calculations.

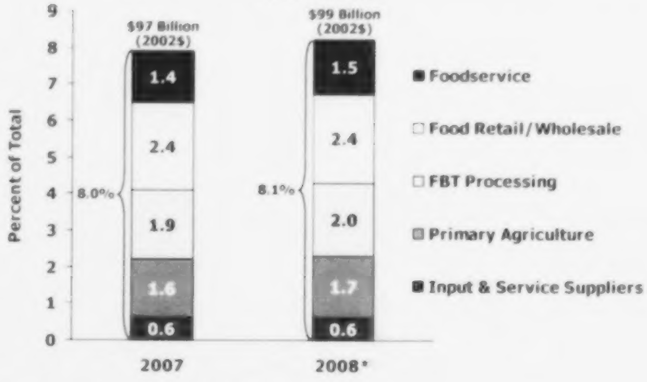
The agriculture and agri-food system plays a significant role in the Canadian economy

- **The Canadian agriculture and agri-food system accounted for 8.1% of total Canadian Gross Domestic Product (GDP) in 2008.**

  The food retail/wholesale industry was the largest contributor to the agriculture and agri-food system's GDP, followed by food, beverage and tobacco (FBT) processing.

  Primary agriculture accounted for about 1.7% of national GDP in 2008, up slightly from 2007.

Chart B1.1
Agriculture and Agri-Food System's Contribution to GDP
2007 and 2008

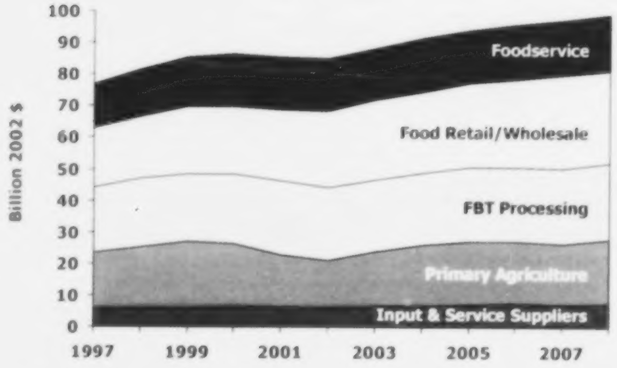


Source: Statistics Canada and AAFC calculations.
Note: *2008 data is preliminary.

- **Since 1997, the overall agriculture and agri-food system has been growing at an average annual rate of 2.4%, which is below the 3.0% growth rate of the overall economy.**

  Food retail/wholesale is the fastest growing component, with an average annual growth rate of 4.2%. Primary agriculture and FBT processing GDP grew, on average, by 1.9% and 1.5% a year, respectively.

Chart B1.2
Agriculture and Agri-Food System's Contribution to GDP
1997-2008



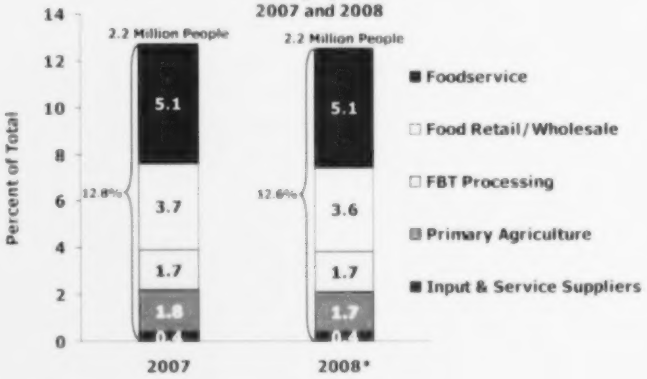
Source: Statistics Canada and AAFC calculations.

It also makes an important contribution to overall Canadian employment

- **The Canadian agriculture and agri-food system provided one in eight jobs in 2008, employing nearly 2.2 million people.**

In 2007 and 2008, the foodservice industry was the major employer in the agriculture and agri-food system, followed by the food retail/wholesale industry. Employment in primary agriculture continues to decline as a share of the total at 1.7%.

Chart B1.3
Agriculture and Agri-Food System's Contribution to Employment
2007 and 2008



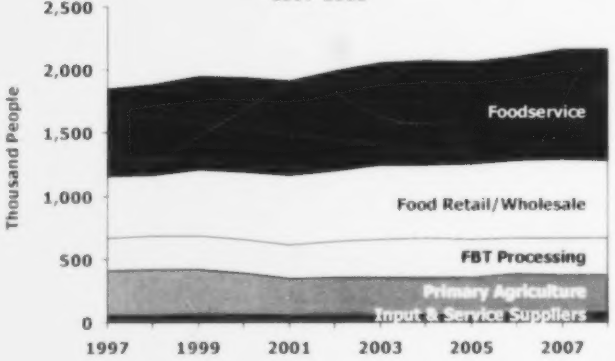
Source: Statistics Canada and AAFC calculations.
Note: *2008 data is preliminary.

- **Employment in the agriculture and agri-food system has been growing at an average annual rate of 1.3% since 1997, which is below the average annual growth rate of 2.0% in the overall economy.**

Foodservice is the largest employer within the system, growing at an average annual rate of 2.2%.

Employment in primary agriculture has been declining, while food processing employment grew at an average annual rate of 1.2%.

Chart B1.4
Agriculture and Agri-Food System's Contribution to Employment
1997-2008



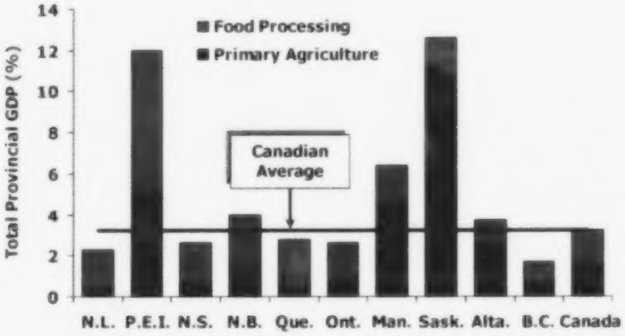
Source: Statistics Canada and AAFC calculations.

The agriculture and agri-food sector is an important source of economic activity in most provinces

- **In terms of contribution to total provincial GDP, agriculture and food processing play the largest role in Saskatchewan and Prince Edward Island, accounting for nearly 13% and 12% of provincial GDP, respectively, in 2008.**

  The mix between primary agriculture and food processing also varies across provinces. East of Manitoba (except for Prince Edward Island), food processing accounts for the largest share of provincial GDP. In the Prairies, primary agriculture plays a more important role.

Chart B1.5
Agriculture and Food Processing's Contribution to Provincial GDP
2008*

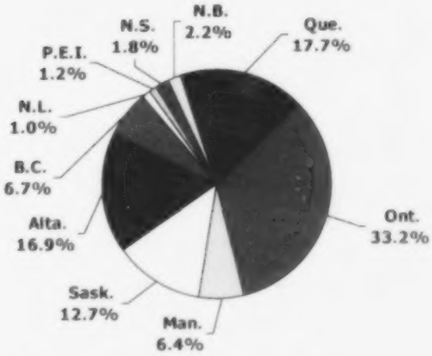


Source: Statistics Canada and AAFC calculations.
Note: Excludes beverage and tobacco processing.
*2008 data is preliminary.

- **The contribution of each province to the total Canadian agriculture and food processing sector GDP varies across Canada.**

  In 2008, Ontario, Quebec and Alberta accounted for almost 70% of the total Canadian agriculture and food processing GDP.

Chart B1.6
Provincial Contribution to Canadian Agriculture and Food Processing GDP
2008*



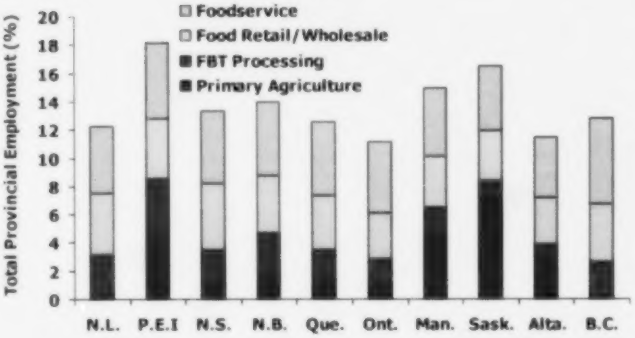
Source: Statistics Canada and AAFC calculations.
Note: Excludes beverage and tobacco processing.
*2008 data is preliminary.

The agriculture and agri-food system is also a major employer in most provincial economies

- **In 2008, the agriculture and agri-food system accounted for the largest share of provincial employment in Prince Edward Island and Saskatchewan at 18% and 16%, respectively.**

In many provinces, employment in foodservice accounted for the largest share of total employment in the agriculture and agri-food system followed by food retailing/wholesaling. The exception was Saskatchewan, where primary agriculture accounted for the largest share of provincial employment. In Prince Edward Island and Manitoba, primary agriculture was the second most important employer after foodservice.

Chart B1.7
Agriculture and Agri-Food System's Share of Provincial Employment
2008*

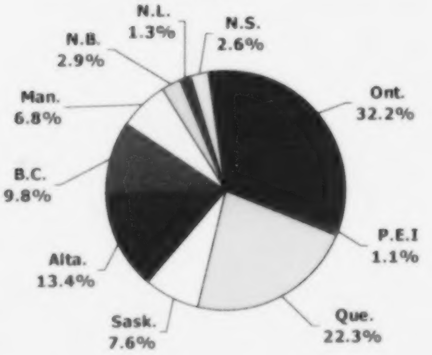


Source: Statistics Canada and AAFC calculations.
Note: Provincial input & service suppliers have been excluded because of reliability and confidentiality data concerns with many of its component industries.
*2008 data is preliminary.

- **Ontario and Quebec account for the largest share of employment in agriculture and food processing.**

In 2008, Ontario, Quebec and Alberta accounted for almost 70% of total Canadian agriculture and food processing employment.

Chart B1.8
Provincial Contribution to Canadian Agriculture and Food Processing Employment
2008*



Source: Statistics Canada and AAFC Calculations.
Note: Excludes beverage and tobacco processing.
*2008 data is preliminary.

SECTION B2

International Trade

Exports are a key component to the success of Canada's agriculture and agri-food sector. During the past 15 years, Canada has increased its share of world agri-food trade in response to trade liberalization and evolving market conditions by producing goods that meet changing market demands. Recent economic fluctuations and volatility in commodity prices in particular, have led to challenges for the sector. Nevertheless, agriculture and agri-food exports have continued to grow.

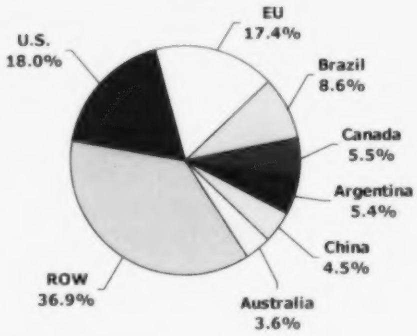
Canada is an important player in the international trade of agricultural and agri-food products

- **Canada exported $38.8 billion of agricultural and agri-food products in 2008, and is the world's fourth-largest agricultural and agri-food exporter, after the U.S., the EU and Brazil.**

  Canada accounts for 5.5% of total world agricultural and agri-food exports.

  Canada's share is 3.5% if intra-EU trade is included.

Chart B2.1
World Agricultural and Agri-Food Export Share by Country of Origin
2008



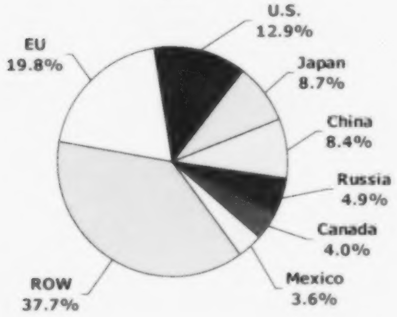
Source: Global Trade Atlas and AAFC calculations.
Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.

- **Canada, which imported $24.9 billion of agricultural and agri-food products in 2008, is the world's sixth-largest agricultural and agri-food importer, after the EU, the U.S., Japan, China and Russia.**

  Canada accounts for 4.0% of total world agricultural and agri-food imports.

  Canada's share is 2.5% if intra-EU trade is included.

Chart B2.2
World Agricultural and Agri-Food Import Share by Country of Origin
2008



Source: Global Trade Atlas and AAFC calculations.
Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.

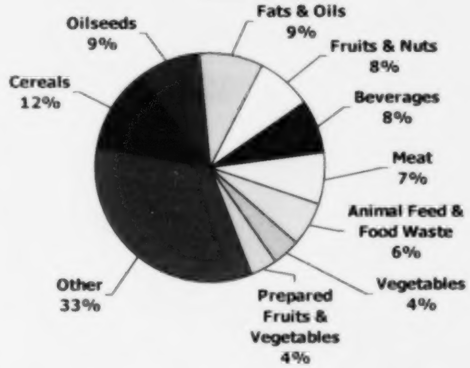
Agricultural and agri-food exports are defined here as agricultural and processed food, beverage and tobacco products. They include processed seafood but do not include fresh seafood.

There is great diversity in the types of agricultural and agri-food products being traded on the world stage

- **In 2008, cereals were the most-traded commodity group, accounting for 11.7% of world agricultural and agri-food trade by value.**

  Other major categories include oilseeds, fats and oils, and fruits and nuts.

Chart B2.3
World Agricultural and Agri-Food Trade by Commodity Group
2008



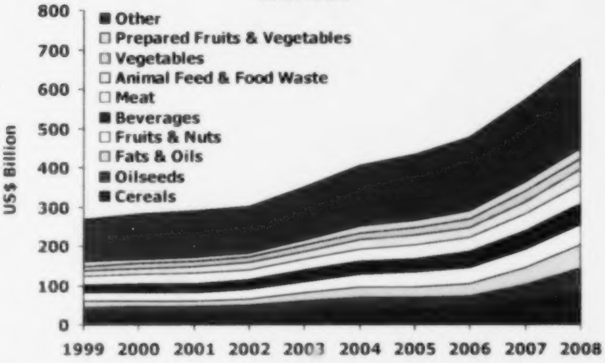
Source: Global Trade Atlas and AAFC calculations.
Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.
3) These groupings are based on two-digit Harmonized System codes.

- **Growth in the value of world trade of agricultural and agri-food products increased in 2008 relative to previous years.**

  World agricultural and agri-food trade grew by 17.8% in 2008 versus an average of 13.7% per year over the previous five years, to reach a total of $US676 billion.

  Certain commodity groups, such as cereals, and fats and oils, saw growth due to higher commodity prices.

Chart B2.4
World Agricultural and Agri-Food Trade by Commodity Group
1999-2008



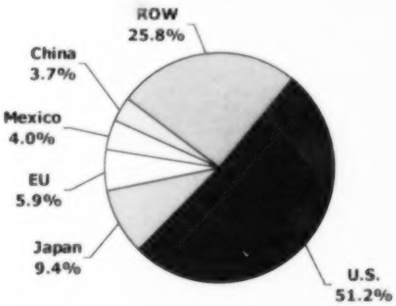
Source: Global Trade Atlas and AAFC calculations.
Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.
3) These groupings are based on two-digit Harmonized System codes.

The U.S. continues to be Canada's most important market for agricultural and agri-food exports

- **In 2008, the U.S. accounted for 51.2% of total Canadian agricultural and agri-food exports, which was higher than the 31% share in 1988, but below the peak of 67% in 2002.**

  Taken together, Japan, the EU, China and Mexico accounted for another 23% of exports.

Chart B2.5
Destinations of Canadian Agricultural and Agri-Food Exports
2008

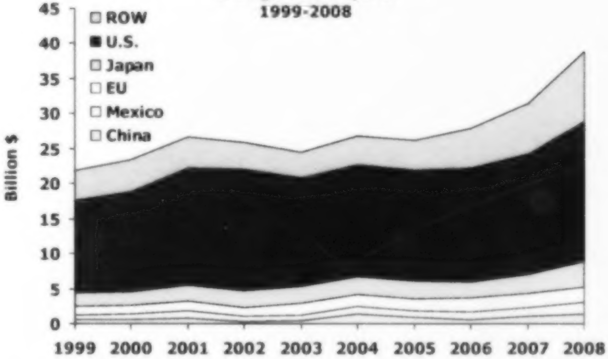


Source: Statistics Canada and AAFC calculations.

- **Canadian agricultural and agri-food export sales to the U.S. have increased 50.9% since 1999 to $19.9 billion out of total exports of $38.8 billion in 2008.**

  Exports to Japan and the EU saw significant growth over the same period, while exports to China doubled and those to Mexico tripled.

Chart B2.6
Destinations of Canadian Agricultural and Agri-Food Exports
1999-2008



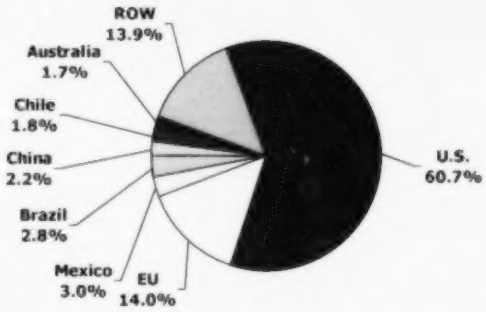
Source: Statistics Canada and AAFC calculations.

The U.S. is also the largest source for Canadian imports of agricultural and agri-food products

- **The U.S. accounted for 60.7% of Canada's imports in 2008, followed by the EU with 14.0%.**

Mexico and Brazil accounted for 3.0% and 2.8% of our imports, respectively.

Chart B2.7
Origin of Canadian Agricultural and Agri-Food Imports
2008



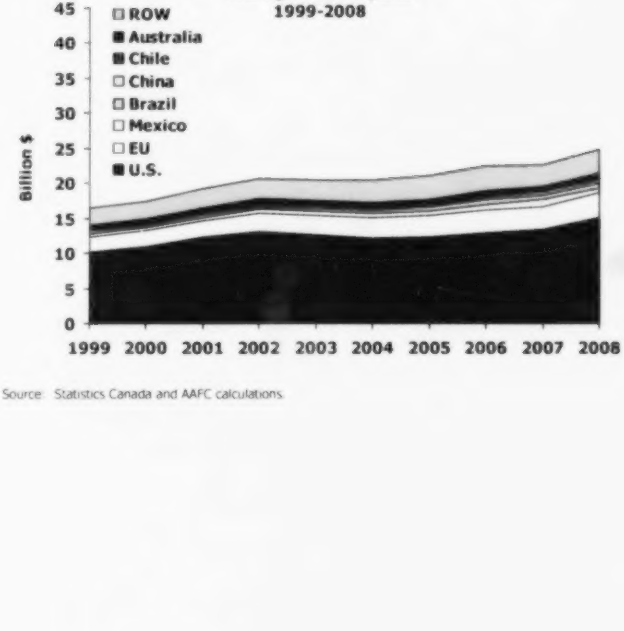
Source: Statistics Canada and AAFC calculations.

- **Imports from the U.S. grew by 48.7% to $15.1 billion between 1999 and 2008, while imports from the EU grew 58.2% to $3.5 billion.**

Imports from Mexico, China and Chile grew rapidly, although they still represent a fairly small fraction of overall trade.

Total Canadian imports reached $24.9 billion in 2008, a 50.6% increase over 1999.

Chart B2.8
Origin of Canadian Agricultural and Agri-Food Imports
1999-2008



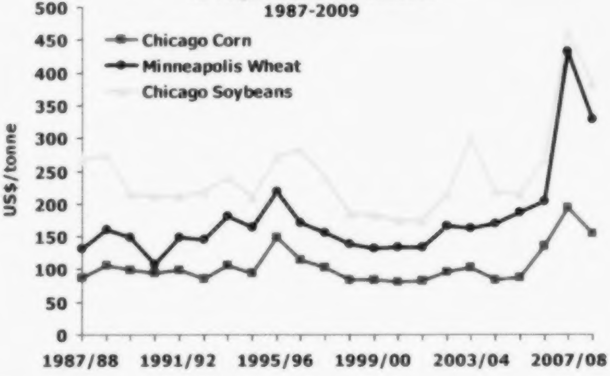
Source: Statistics Canada and AAFC calculations.

The value of Canadian agricultural and agri-food exports is determined by international market prices

- **Grain and oilseed prices skyrocketed during the 2007-2008 crop year. Weather, international export bans and competing uses for agricultural products have all been cited as possible global causes of these price increases.**

  Corn, wheat and soybean prices climbed 43%, 112% and 74%, respectively, relative to the previous crop year.

Chart B2.9
International Market Prices
for Major Grains and Oilseeds
1987-2009

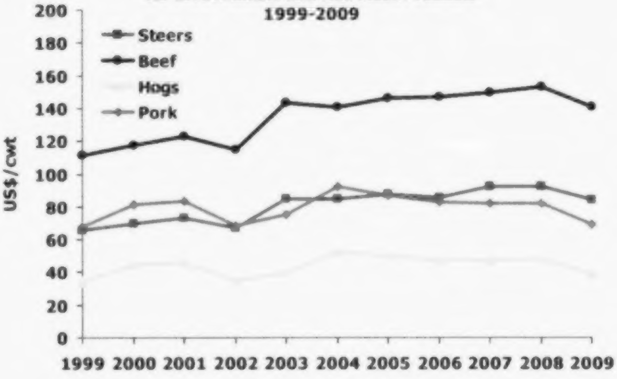


Source: AAFC calculations.

- **International market prices for live animals and red meats did not exhibit the same increases seen in markets for grains and oilseeds in 2007 and 2008.**

  While grain and oilseed products are used as feed in the livestock industry, they are only one of many components contributing to overall price levels.

Chart B2.10
International Market Prices
for Live Animals and Red Meat Products
1999-2009



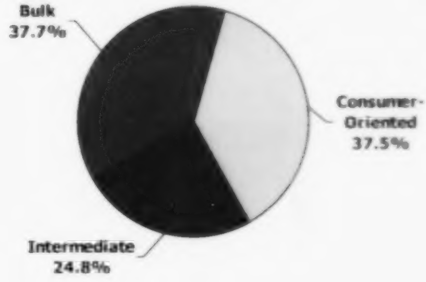
Source: AAFC calculations.

Changes in commodity prices over the past few years have increased the share of bulk products in overall export values

- **In 2008, Canada exported bulk agricultural commodities (37.7%) and consumer-oriented products (37.5%) in roughly equal proportion. Another 24.8% of all commodity exports were intermediate products.**

Chart B2.11
Canadian Agricultural and Agri-Food Export Sales (BICO)
2008

$38.8 Billion

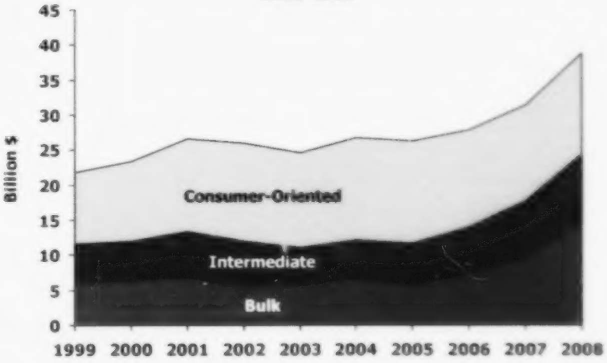


Source: Statistics Canada and AAFC calculations.

- **The relative proportion of bulk versus consumer-oriented exports shifted considerably between 2006 and 2008. On average, between 1999 and 2006, 51.9% of exports were consumer-oriented while 24.8% were bulk.**

The proportion of intermediate exports has remained fairly constant over time.

Chart B2.12
Canadian Agricultural and Agri-Food Export Sales (BICO)
1990-2008



Source: Statistics Canada and AAFC calculations.

Consumer-oriented products require little or no additional processing and are generally ready for final consumption. Examples include fresh fruits, vegetables, processed meat and seafood.

Bulk products have received little or no processing, while intermediate products have received some processing but are not yet ready for final consumption.

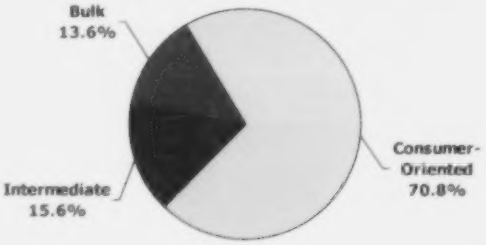
The proportions of bulk, intermediate and consumer-oriented imports have remained fairly constant over time

- **The majority of Canadian agricultural and agri-food imports are consumer-oriented products, accounting for 70.8% of imports in 2008.**

  Intermediate products accounted for 15.6% and bulk products for 13.6% of imports.

Chart B2.13
Canadian Agricultural and Agri-Food Import Sales (BICO)
2008

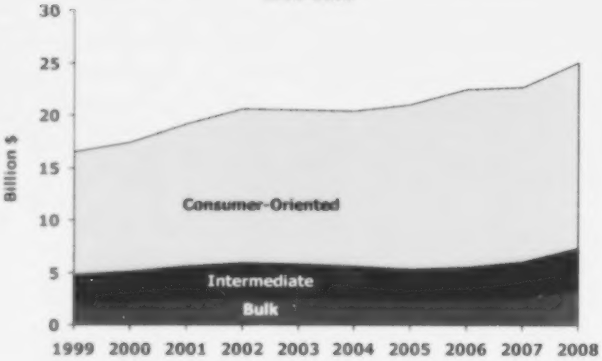
$25.1 Billion



Source: Statistics Canada and AAFC calculations.

- **Between 1999 and 2008, imports of consumer-oriented products grew 50.8% to $17.7 billion, intermediate products by 49.7% to $3.9 billion and bulk products by 61.3% to $3.4 billion.**

Chart B2.14
Canadian Agricultural and Agri-Food Import Sales (BICO)
1990-2008



Source: Statistics Canada and AAFC calculations.

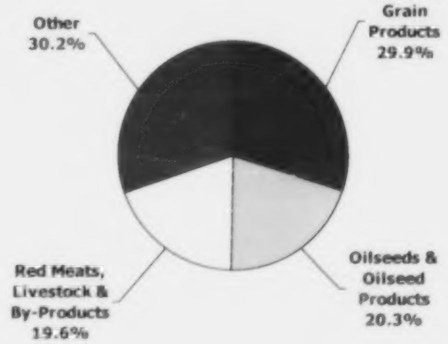
The majority of Canada's agricultural and agri-food exports are produced by the grain, oilseed and livestock sectors

- **Grains and grain products accounted for 29.9% of the total value of agricultural and agri-food exports in 2008.**

Oilseeds and oilseed products were the next-largest category in terms of export sales at 20.3%, while red meats, livestock and by-products accounted for another 19.6%.

The "other" category includes primarily fruits and vegetable preparations such as frozen potatoes and dried pulses.

Chart B2.15
Commodity Composition of Canadian Export Sales
2008



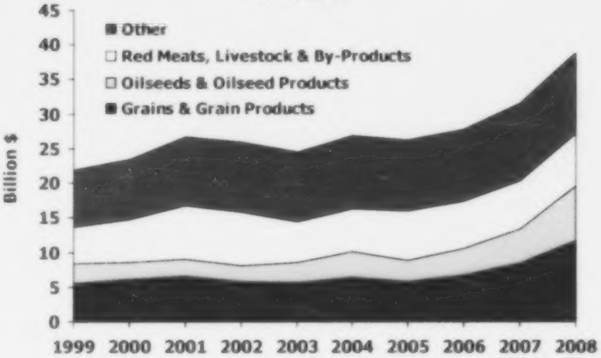
Source: Statistics Canada and AAFC calculations

- **Growth in export values of grains, oilseeds and their products were particularly strong in 2007 and 2008, a period of high commodity prices around the world.**

Exports of grains and grain products grew 111.8% between 1999 and 2008 to $11.6 billion. Exports of oilseeds and oilseed products grew 172.4% to $7.9 billion over the same period.

Exports of red meats, livestock and by-products grew 46.1% over the same period to $7.6 billion.

Chart B2.16
Commodity Composition of Canadian Export Sales
1999-2008



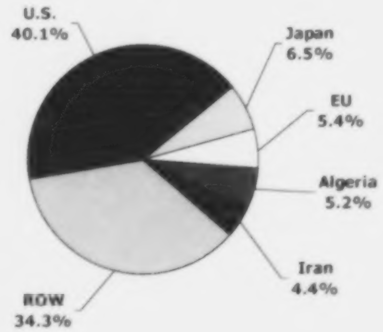
Source: Statistics Canada and AAFC calculations

Canadian grains and grain product exports grew dramatically between 2007 and 2008 during a time of higher commodity prices

- **Canadian grains and grain products are exported to a diverse set of markets. While the U.S. is certainly a major market, accounting for 40.1% of export sales, Canadian grains and grain products were exported to 127 countries in 2008.**

  Japan, the EU and Algeria were the next-largest export markets, accounting for 6.5%, 5.4% and 5.2% of export sales, respectively.

Chart B2.17
Canadian Grains and Grain Product Exports by Country
2008



Source: Statistics Canada and AAFC calculations

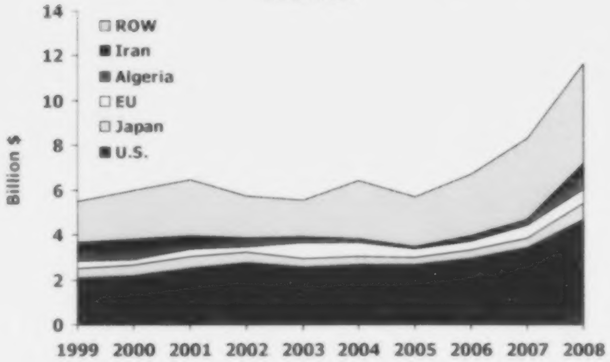
- **Export sales to the U.S. grew 124% to $4.7 billion between 1999 and 2008, while exports to countries other than the U.S. grew 104.3% to $7.0 billion.**

  Most of this growth occurred during the period of high global grain prices after 2006.

  The U.S. was the top export destination in 2008 (14.3%). Significant exports went to other countries in other areas of the world such as Asia, Europe and the Middle East.

  Durum wheat accounted for another 16.7% of grain and grain product exports, with the U.S., the EU and Algeria being the top markets.

Chart B2.18
Canadian Grains and Grain Product Exports by Country
1999-2008



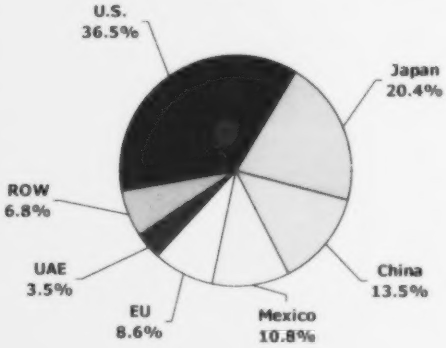
Source: Statistics Canada and AAFC calculations

Export sales of oilseeds and oilseed products also exhibited tremendous growth over 2007 and 2008

- **The U.S. was Canada's largest export market for oilseeds and oilseed products in 2008, accounting for 36.5% of sales.**

Unlike grains and grain products, Canadian exports of oilseeds and oilseed products are narrowly focussed on a small number of key markets. The top four markets accounted for 81.2% of export sales in 2008.

Chart B2.19
Canadian Oilseeds and Oilseed Product Exports by Country
2008

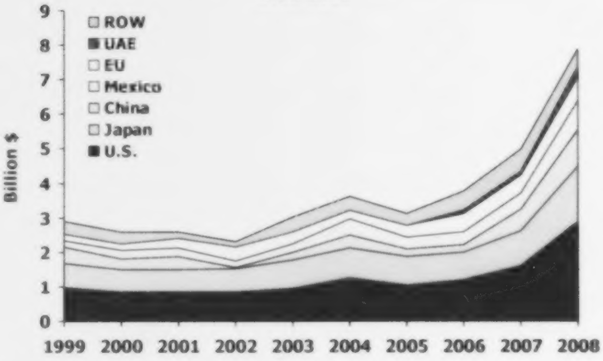


Source: Statistics Canada and AAFC calculations.

- **Export sales to the U.S. grew 202% to $2.9 billion between 1999 and 2008. Sales to Japan, China and Mexico also increased substantially.**

Canola, canola oil and related canola products accounted for 77% of exports in 2008. Japan, Mexico and China were the main markets for canola, while the U.S. was the major destination for canola oil.

Chart B2.20
Canadian Oilseeds and Oilseed Product Exports by Country
1999-2008



Source: Statistics Canada and AAFC calculations.

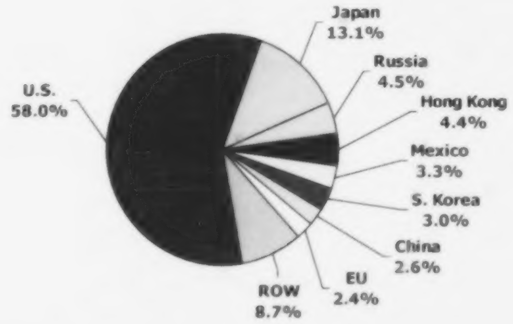
Exports of livestock, red meat and by-products exhibited limited growth

- **The U.S. is Canada's largest export market for livestock, red meat and by-products, accounting for 58.0% of sales in 2008.**

Sales to the U.S. were four times greater than sales to the next-largest export destination, Japan at 13.1%.

Much of the remaining 28.9% in exports was accounted for by sales to other countries in the Pacific region.

Chart B2.21
Canadian Livestock, Red Meat and By-Product Exports
by Country
2008



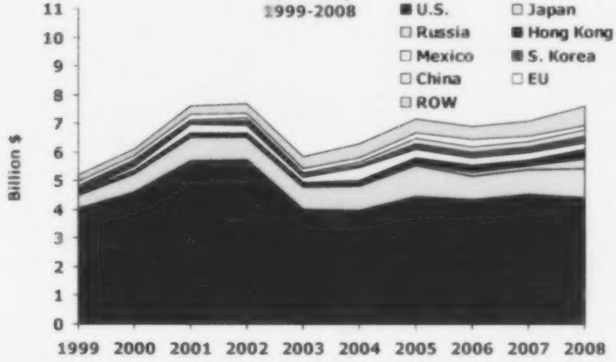
Source: Statistics Canada and AAFC calculations

- **In 2008, export sales of $4.4 billion to the U.S. were only 9.8% above sales in 1999. This was far below the peak of $5.7 billion in sales to the U.S. prior to the BSE incident in 2003.**

Exports to Japan doubled over the entire period to $1 billion.

New markets, such as Russia and Mexico, have emerged in recent years, although exports to these countries are small in relation to exports to the U.S.

Chart B2.22
Canadian Livestock, Red Meat and By-Product Exports
by Country
1999-2008



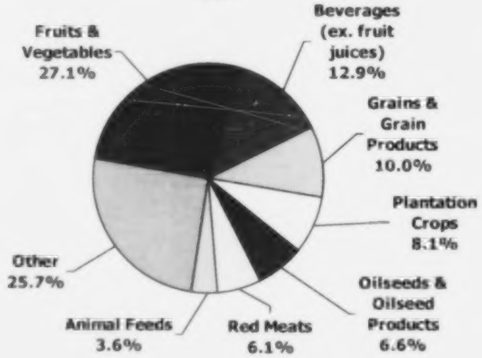
Source: Statistics Canada and AAFC calculations

Canada's largest import categories are fruits and vegetables, beverages and grains and grain products

- **Fruits and vegetables are Canada's largest agricultural and agri-food import category, accounting for 27.1% of all imports in 2008.**

The next-largest categories were beverages (excluding fruit juice) at 12.9% of imports and grains and grain products at 10.0% of imports.

Chart B2.23
Commodity Composition of Canadian Import Sales
2008

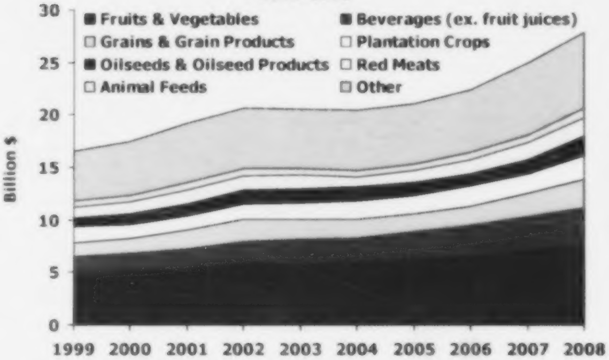


Source: Statistics Canada and AAFC calculations

- **The value of fruit and vegetable imports grew 57.6% to $7.6 billion between 1999 and 2008.**

Imports of beverages (excluding fruit juice) grew by 112.7% to $3.6 billion, while imports of grains and grain products grew by 104.5% to $2.8 billion.

Chart B2.24
World Agricultural and Agri-Food Trade by Commodity Group
1999-2008



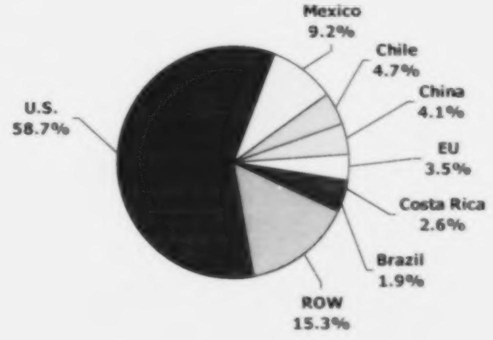
Source: Statistics Canada and AAFC calculations

Given our climate, Canada is quite reliant on imports to meet domestic demand for fruits and vegetables

- **The U.S. was the source of 58.7% of all fruit and vegetable imports in 2008.**

  Mexico sourced for another 9.2%. The remainder came from a variety of countries around the world.

Chart B2.25
Canadian Fruit and Vegetable Imports by Country
2008

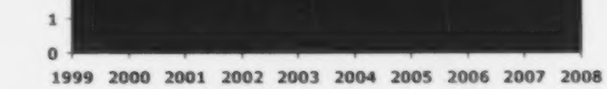


Source: Statistics Canada and AAFC calculations.

- **Imports of fruits and vegetables grew by 57.6% to $7.6 billion between 1999 and 2008.**

  Imports from the U.S. accounted for much of this growth, rising 44.6% to $4.4 billion. Imports from Mexico, Chile, China and Costa Rica also exhibited strong growth.

Chart B2.26
Canadian Fruit and Vegetable Imports by Country
1999-2008



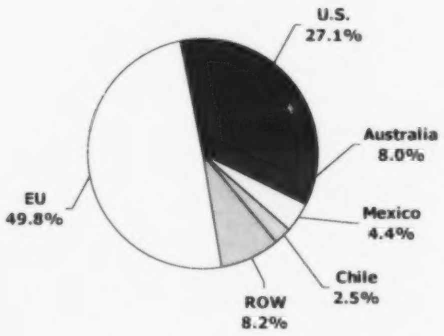
Source: Statistics Canada and AAFC calculations.

Canadian imports of beverage products have expanded considerably over the past decade, particularly from the EU

- **The EU was the source of 49.8% of all beverage imports (excluding fruit juices) in 2008, while the U.S. sourced for another 27.1%.**

Wine, beer and other liquors accounted for 80% of all imports.

Chart B2.27
Canadian Beverage Imports by Country
2008

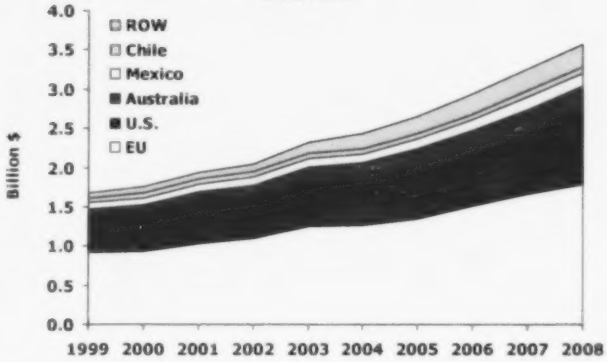


Source: Statistics Canada and AAFC calculations.

- **Total imports from all countries grew by 112.7% to $3.6 billion between 1999 and 2008. The EU accounted for roughly half of this growth, and the U.S. for another quarter.**

Imports from Australia also exhibited strong growth due to greater imports of wine.

Chart B2.28
Canadian Beverage Imports by Country
1999-2008



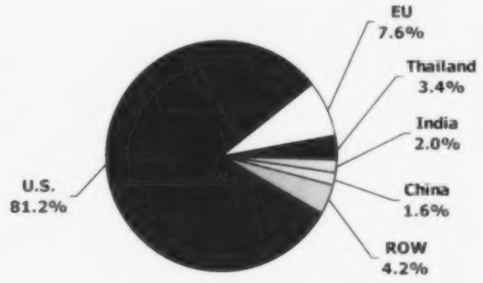
Source: Statistics Canada and AAFC calculations.

Imports of grains and grain products were impacted by recent volatility in global grain prices

- **The U.S. is the main source of Canadian grains and grain product imports, accounting for 81.2% of all imports in 2008.**

  Imports from the U.S. were over ten times larger than the next-largest source, the EU, which accounted for 7.6%.

Chart B2.29
Canadian Grains and Grain Product Imports by Country
2008

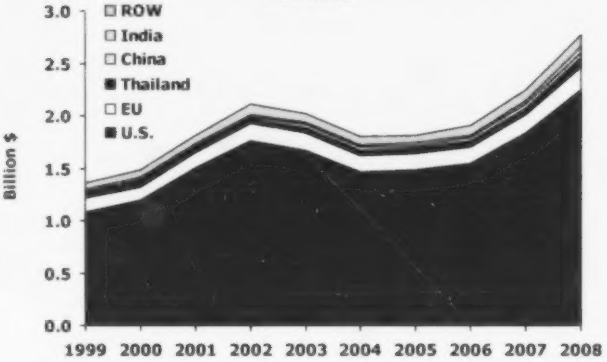


Source: Statistics Canada and AAFC calculations.

- **Total grains and grain product imports grew 104.5% between 1999 and 2008 to $2.8 billion. Much of this growth occurred after 2006 when global grain prices rose sharply.**

  Total grains and grain product imports rose by $0.9 billion between 2006 and 2008. Higher prices for grains such as corn contributed to much of this growth, although higher imports of bakery products also played a role.

Chart B2.30
Canadian Grains and Grain Product Imports by Country
1999-2008

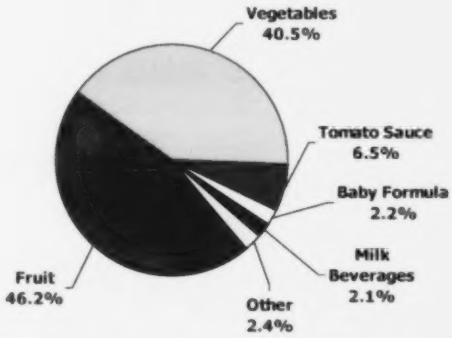


Source: Statistics Canada and AAFC calculations.

As of January 2007, Canada became the first country to track imports of products certified as organic

- **Fruits and vegetables make up the largest share (86.7%) of total organic imports, which were valued at $240 million in 2008.** Organic products, which make up roughly 3% of the overall value of fruit and vegetable imports, generally command higher prices than their non-organic equivalents.

Chart B2.31
Canadian Imports of Organic Products by Type
2008

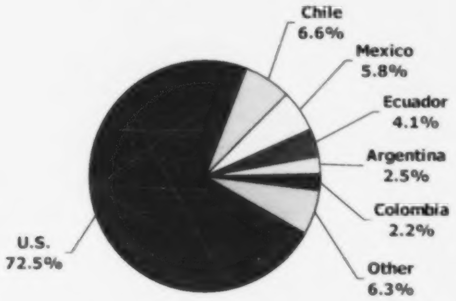


Source: Statistics Canada and AAFC calculations.

- **Most imports, certified as organic, currently come from the U.S.**

Sizable imports also come from Chile and Mexico, which like the U.S., are major sources of fruit and vegetable imports.

Chart B2.32
Canadian Imports of Organic Products by Country
2008



Source: Statistics Canada and AAFC calculations.

An imported product is certified as organic and may be sold, labelled or represented in Canada as organic if the product has been approved by a certification body accredited by the Canadian Food Inspection Agency (CFIA). There are also verification bodies that have agreements with Canada to assess and monitor the certification bodies. On June 17, 2009, Canada and the U.S. entered into an arrangement recognizing both national organic systems as equivalent.

Products certified as organic come from a farm system employing management practices that seek to nurture ecosystems in order to achieve sustainable productivity; and that provide weed, pest and disease control through a diverse mix of mutually-dependent life forms, recycling of plant and animal residues, crop selection and rotation, water management, tillage and cultivation practices.

SECTION B3

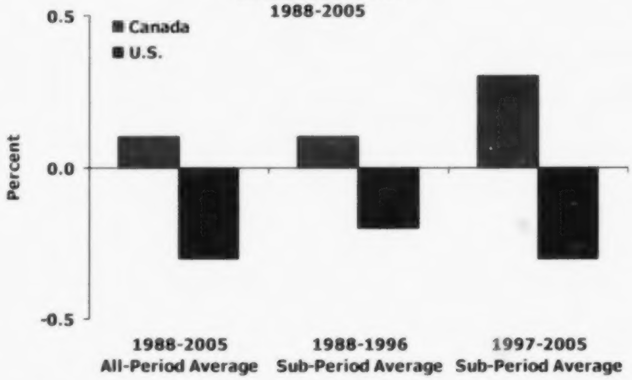
Productivity, R&D and Innovation

Innovation is key to the agriculture and agri-food system's productivity growth and long-term prosperity. Innovation improves the manner in which capital and labour inputs are combined, resulting in more efficient and effective production. Innovation has been taking place in the food, beverage and tobacco processing industry, but has been challenged by impediments in developing new products and processes, as well as in commercialization.

Productivity growth in the Canadian food, beverage and tobacco (FBT) industries has exceeded that in the U.S. FBT industries, but has remained below that in total Canadian manufacturing

- **Productivity growth has been low in the Canadian FBT sector, but has been consistently higher than that in the U.S.** Total factor productivity growth in Canadian FBT industries averaged about 0.1% annually between 1988 and 2005. Growth was higher in the 1997-2005 sub-period, at an average of about 0.3% annually. In the U.S., total factor productivity growth averaged around -0.3% annually over the 1988-2005 period, with no significant change between sub-periods.

Chart B3.1
Productivity Growth in the FBT Industries
Canada and the U.S.
1988-2005

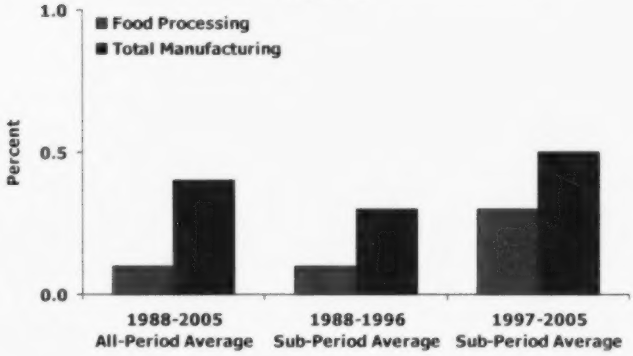


Source: Statistics Canada, U.S. Bureau of Labor Statistics and AAFC calculations.

- **Productivity growth in food processing has been low relative to total Canadian manufacturing, but the gap appears to have narrowed in recent years.**

  Between 1988 and 2005, the average annual productivity growth rate for total Canadian manufacturing was about three times higher than that in the FBT industries. This gap appears to have been narrowing – between 1988 and 1996, average annual productivity growth in manufacturing was about 0.4% and in FBT industries it was about 0.1 %. Between 1998 and 2005, the rates were near 0.5% and 0.3%, respectively.

Chart B3.2
Total Factor Productivity Growth
for Canadian Food Processing and Total Manufacturing
1988-2005

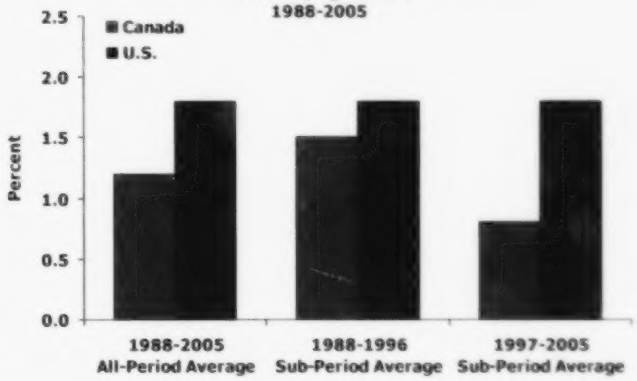


Source: Statistics Canada.
Note: These are geometric mean growth rates for gross output total factor productivity indexes.

Productivity growth in Canadian agriculture has been lower than that of U.S. agriculture and is declining

- **Average annual productivity growth in Canadian primary agriculture has been consistently lower than that in the U.S.** Over the period between 1988 and 2005, the average annual productivity growth rate in Canada was about 1.2% versus 1.8% in the U.S. When viewed in terms of the two sub-periods, productivity growth was similar to the U.S. between 1988 and 1996, but considerably lower between 1997 and 2005.

Chart B3.3
Canadian and U.S. Total Factor Productivity Growth in Primary Agriculture 1988-2005

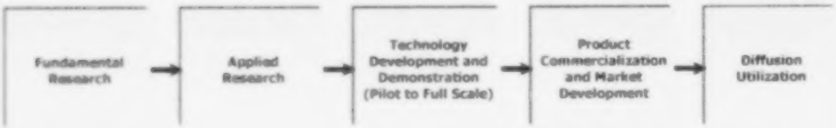


Source: Statistics Canada and USDA (ERS).

Note: These are geometric mean growth rates for gross output total factor productivity indexes.

Productivity growth occurs as a result of innovation

Chart B3.4
Stages of Technology Development or Innovation


Fundamental Research
Applied Research
Technology Development and Demonstration (Pilot to Full Scale)
Product Commercialization and Market Development
Diffusion Utilization

Source: Adapted from Sustainable Development Technologies Canada (SDTC). http://www.sdtc.ca/en/about/innovation_chain.htm.

This is a simplified linear version of innovation showing the various stages of development.

Fundamental Research: where basic research on a new technological approach or idea is conducted using science.

Applied Research: research that addresses a particular problem. The result is technology that shows enough promise technically and in market potential to allow it to garner scale-up support.

Technology Development: where research is moved from bench to pilot-stage research on a given technology, requiring various false starts that need correction. The result is a kind of technology that shows enough support to garner support for scale-up and full-scale demonstration.

Demonstration: where tests are conducted on first time or early stage technology at full scale under varying conditions to show its range of performance, determine its applicabilities and weaknesses, optimize its operational parameters, and determine its costs. The demonstration stage can be characterized by substantial redesign and debugging until final "robustness" and optimization can be established. Final results may be used to market financial backers and even customers.

Verification: where commercial-ready technology is tested and reported on under specific, pre-determined protocols designed by stakeholders and quality assurance procedures. Results, if positive, are used for direct marketing purposes.

Commercialization Scale Up: to prepare for, finance, and implement full-scale manufacturing and marketing activities, moving from one or a few-of-a-kind to reliably-produced and replicable technology. This often includes developing business plans, entering into partnerships, securing working capital, arranging for manufacturing facilities, and developing channels for:

- **Diffusion:** where a full-scale marketing plan for products or technology including interface with appropriate authorities is implemented. This stage is characterized by intensive marketing to all appropriate stakeholders and can be assisted by government through a broad array of tools such as websites, targetted conferences, list-serves, and information-targeting state and local authorities.
- **Utilization:** when the adoption and/or purchase of fully-developed and proven new technology is encouraged by assisting in the flow of information about the technology within the targeted environmental area, acting as "first users", and by removing regulatory barriers to its implementation.

Innovation has been taking place in Canadian food and beverage processing industries

- **About 79% of business units in food manufacturing and 76% of business units in all manufacturing introduced product, process, organizational, or marketing innovations between 2005 and 2007.**

There are variations across food manufacturing industries with fruit and vegetable preserving and specialty establishments leading process, product, and organizational innovations. Sugar and confectionery establishments were more likely to introduce marketing innovations.

Chart B3.5
Extent of Innovation in Food Manufacturing
2005-2007

INDUSTRY	PRODUCT	PROCESS	ORGANI-ZATIONAL	MARKETING
	% of Business Units			
Food Manufacturing	**59.7**	**47.2**	**39.7**	**27.5**
Animal Food	55.2	49.6	41.5	17.5
Grain & Oilseed Milling	56.3	38.8	41.7	14.4
Sugar & Confectionery Products	60.0	47.9	35.9	40.2
Fruit & Veg. Preserving & Specialty Food	69.4	70.7	55.8	38.3
Dairy Products	65.6	42.4	27.9	24.6
Meat Products	62.8	58.2	46.6	37.8
Seafood Products	38.3	30.5	27.4	16.5
Bakeries & Tortilla	67.6	47.7	42.5	34.9
Other Food	61.4	39.2	36.5	20.0

Source: Statistics Canada, Survey of Advanced Technology, 2007.

- **The most important factors impeding adoption of advanced technology in food processing are related to financial justification of the adoption, with the high cost of equipment and capital identified as the leading factors.**

Sugar and confectionery manufacturing reported the most establishments facing financial challenges, while the bakeries and tortilla industry reported the most establishments facing human resource impediments, such as shortage of skilled workers.

Chart B3.6
Obstacles to Adoption of Advanced Technologies
in Food Manufacturing
2005-2007

OBSTACLES	% OF BUSINESS UNITS
LACK OF FINANCIAL JUSTIFICATION	
High Cost of Equipment	71.6
Cost of Capital	60.0
Cost of Integration of New Technology	55.5
Uncompetitive Return on Investment (ROI)	55.2
Availability of Capital	50.1
HUMAN RESOURCES	
Shortage of Skilled Workers	47.8
ORGANIZATIONAL	
Difficulty or Inability to Integrate New Technology into	34.9
Existing System	34.3

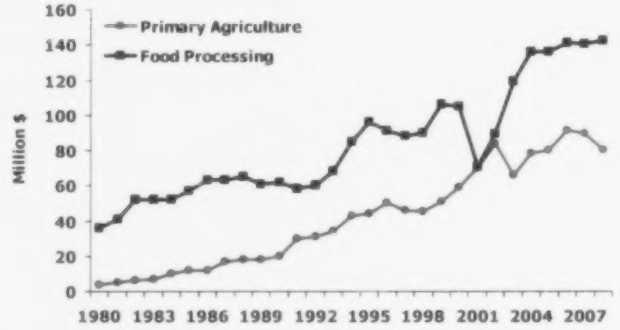
Source: Statistics Canada, Survey of Advanced Technology, 2007.

Both private and public sector research and development (R&D) spending is a key input required for innovation to take place

- **Private sector R&D expenditures in the agriculture and agri-food sector increased considerably between 1980 and 2002, but have slowed recently.**

  Private sector R&D spending in primary agriculture increased from $66 million in 2003 to $80 million in 2008. Food processing industry R&D has increased since 2002, and reached $142 million in 2008.

Chart B3.7
Private Sector R&D Expenditures
in the Agriculture & Agri-Food Sector
1980-2008



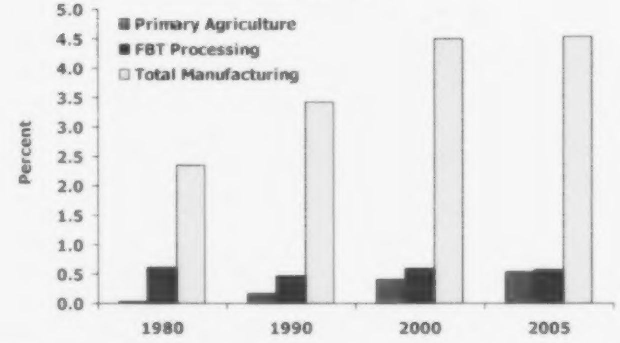
Source: Statistics Canada.
Notes: 1) 2006, 2007 and 2008 data is preliminary.
2) This includes all R&D expenditures made by private industry regardless of whether the sources of funds were self-financed, government grants/contracts or from other companies.

- **Private sector R&D spending as a share of gross domestic product (GDP) is considerably lower for primary agriculture and food processing compared to total manufacturing.**

  In 2005, 4.5% of GDP in manufacturing was spent on R&D, compared to only 0.5% in primary agriculture and 0.6% in FBT processing.

  Primary agriculture benefits from R&D investments made by input suppliers such as seed developers and fertilizer producers and by the public sector, which is primarily responsible for public good research by input suppliers and by the public sector.

Chart B3.8
Private Sector R&D Expenditures as a Share of GDP
by Industry
1980-2005



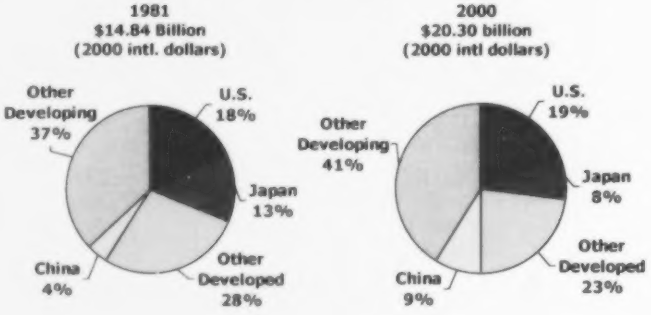
Source: Statistics Canada.
Note: This includes all R&D expenditures made by private industry regardless of whether the sources of funds were self-financed, government grants/contracts or from other companies.

Public R&D expenditures in agriculture have been declining in Canada and other developed countries

- **The share of agricultural R&D expenditure in developed countries has fallen over time.**

Between 1981 and 2000, the share of global R&D spending in the U.S. grew, while it fell in Japan and other developed countries. In contrast, China's share increased from 4% to 9% at the same time as other developing countries, from 37% to 41% over the same period.

Chart B3.9
Public Agricultural R&D Spending Worldwide
1981 and 2000

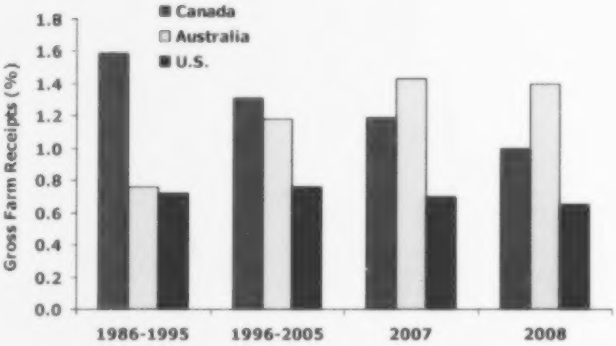


Source: Pardey, 2009.

- **Canada's public R&D spending in the agriculture and agri-food sector declined as a share of gross farm receipts from an average of 1.6% in 1986 and 1992 to 1.3% in 1999 and 2008.**

In 2008, public sector R&D as a share of gross farm receipts was lower in Canada than in Australia, but higher than in the U.S. The average share in Australia jumped from 0.8% in the 1986-1995 period to 1.2% in 1996-2005 and 1.4% in 2008. In the U.S., this share has remained in the 0.7% range over the past twenty years.

Chart B3.10
Public R&D Support to the Agriculture and Agri-Food Sector
1986-2008



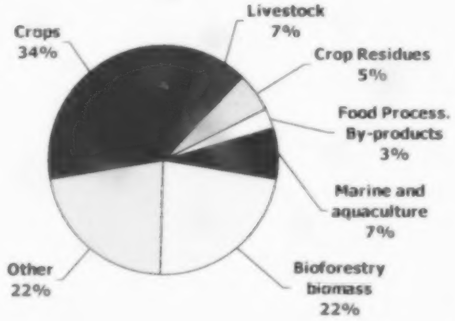
Source: OECD, "Agricultural Policies in OECD Countries: Monitoring and Evaluation 2009".

The development of the bioproduct industry in Canada is an innovative way to make use of agricultural biomass for the development of new products and processes

- **Agriculture biomass was an important input for the Canadian bioproduct industry in 2006.**

Agriculture biomass (45%) was the main feedstock used to produce bioproducts in Canada in 2006, with crop biomass accounting for 34% of the total. Wheat, canola, soybeans and vegetables were the main crops used as biomass. Other sources were animal by-products, animal waste and flax straw.

Chart B3.11
Biomass Inputs Used by Bioproduct Firms
2006



Source: Statistics Canada, Bioproducts Development and Production Survey 2006.

Note: "Other" includes industrial organic waste (0.7), municipal organic waste (2.4) and dedicated biomass crops (0.4).

- **R&D investments by bioproduct firms were important for product development.**

About 5% of bioproduct revenues were allocated to bioproduct R&D in 2006. Overall, bioproduct firms allocated over $1 million per firm to R&D, 37% of this was devoted to bioproduct development, biomass development and contracting out.

Small and medium-sized firms allocated a larger share of their revenues to R&D spending on bioproduct and biomass development than larger firms. Small firms allocated 12% of their bioproduct revenues to bioproduct R&D compared to the national average of 5%.

Chart B3.12
R&D Expenditures on Bioproducts by Firm Size
2006

SIZE	Average Total R&D per Firm	Average Total Bioproducts R&D per Firm	Bioproducts R&D Spending to Total R&D	Bioproducts R&D/Bioproduct Revenue
	('000)		%	
Small	679	227	86.4	12.3
Medium	1,812	400	62.8	2.5
Large	442	1,753	19.8	3.3
Canada	**1,016**	**379**	**37.3**	**5.1**

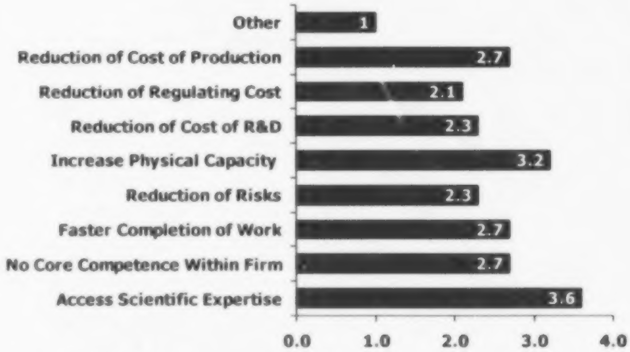
Source: Statistics Canada, Bioproducts Development and Production Survey 2006.

Bioproducts are products other than food, feed and medicine made from renewable biological inputs (biomass).

In-house R&D is important for bioproduct firms, however outsourcing R&D increased in 2006

- **Contracting out was used by bioproduct firms to access outside scientific expertise, whereas most collaboration agreements were used to access biomass, conduct R&D, and access markets.**

Chart B3.13
Ranking of Reasons Bioproduct Firms Give for Contracting Out R&D
2006



Source: Statistics Canada, Bioproducts Development and Production Survey 2006.

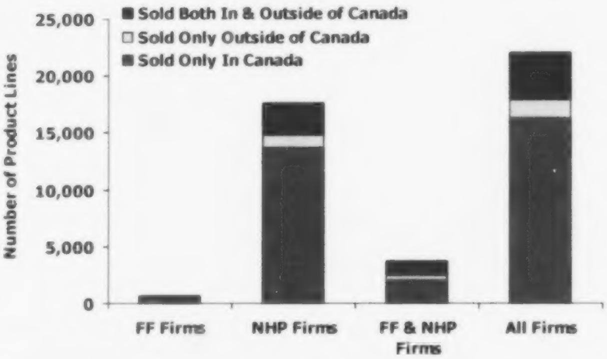
The development of functional foods and natural health (FFNH) products is leading to innovative products that make use of agricultural inputs for the health benefit of Canadians

- **FFNH products constitute a growing agriculture-based industry that is founded on innovative product lines.**

There were more than 22,000 FFNH product lines sold in Canada and abroad, of which 80% were natural health product lines.

Approximately 74% of FFNH product lines were sold in Canada only, 7% were sold outside of Canada only, and 19% were sold both in Canada and outside of Canada.

Chart B3.14
Number of Functional Food and Natural Health Product Lines
2007

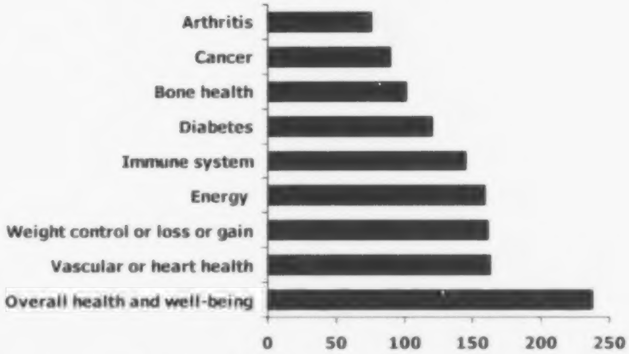


Source: Statistics Canada, Functional Foods and Natural Health Products Survey, 2007.

- **Increased knowledge by consumers that certain components in food and natural health products may promote well-being and reduce the risk of disease, encourage firms to develop FFNH products for a variety of health purposes.**

In 2007, the main health purposes given by FFNH product firms for developing FFNH products were: overall health and well-being, vascular and heart health and weight control.

Chart B3.15
Health Purposes Addressed by Functional Food and Natural Health Product Firms
2007



Source: Statistics Canada, Functional Foods and Natural Health Products Survey, 2007.

Functional foods, are similar in appearance to or may be, a conventional food, consumed as part of a usual diet, which is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions.

Natural health products are products made from natural sources, often sold in dosage form and are designed to maintain or promote health; to restore or correct human health functions; or to diagnose, treat or prevent disease.

Changes in consumer demand towards healthier products have promoted the development of innovative products by more food firms

- **More firms are involved in natural health products than ever before.**

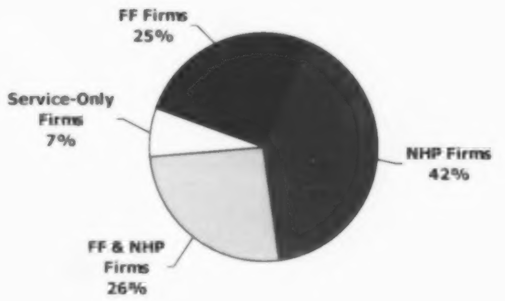
In 2007, there were 689 firms engaged in FFNH product activities, of which 42% were involved in natural health products only.

The number of firms involved in functional food activities increased by 64% compared to 2004.

The majority of FFNH product firms are located in Ontario, Quebec and British Columbia, with over 50% in Quebec and Ontario.

More than 50% of the FFNH product firms in Quebec and British Columbia are involved in natural health products only.

Chart B3.16
Number of Functional Food, Natural Health Product and Service-Only Firms
2007



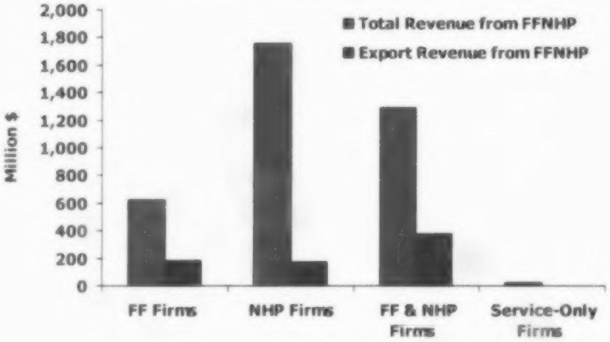
Source: Statistics Canada, Functional Foods and Natural Health Products Survey, 2007.

- **Most revenues came from firms involved in natural health products.**

In 2007, FFNH product firms reported revenues of $3.7 billion. This represented 17% of the revenues generated from these firms. Many of these firms produce other products. Total revenue from natural health products ($2.57 billion) is twice that of functional foods ($1.12 billion).

The majority of exports originated from firms in the natural health product industry ($435 million) and no export revenue was generated by service-only firms in the FFNHP industry.

Chart B3.17
Average Revenues of Functional Food and Natural Health Product Firms
2007



Source: Statistics Canada, Functional Foods and Natural Health Products Survey, 2007.

The development of the functional foods and natural health product industry depends mainly on advances in technological and nutritional R&D, as well as the successful commercialization of these products

- **R&D spending has been robust for functional foods and natural health products.**

  About 68% of functional food firms reported R&D investments on functional food product activities only, whereas 44% of natural health product firms reported R&D investments in natural health product activities.

  In 2007, FFNH product firms invested $148 million in R&D activities related to functional foods and natural health products, of which 61% was on functional foods and 39% on natural health products. Functional foods accounted for the largest share of spending (48%) of total FFNH product R&D, followed by natural health products (39%).

  R&D intensity, which measures the share of revenues committed to R&D, was almost 4% on average for firms involved in either functional foods, natural health products or both.

  In 2007, 81% of functional food firms and 63% of natural health product firms reported product development or scale up of new products in the field of functional foods or natural health products.

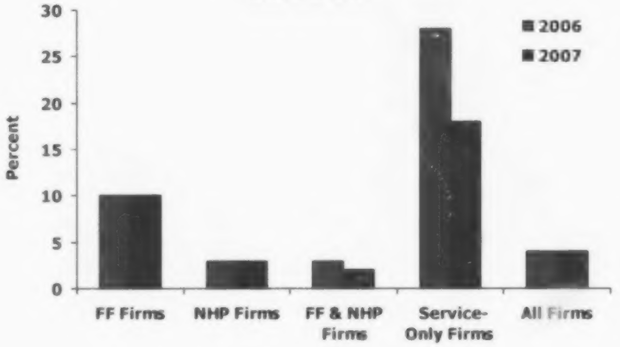


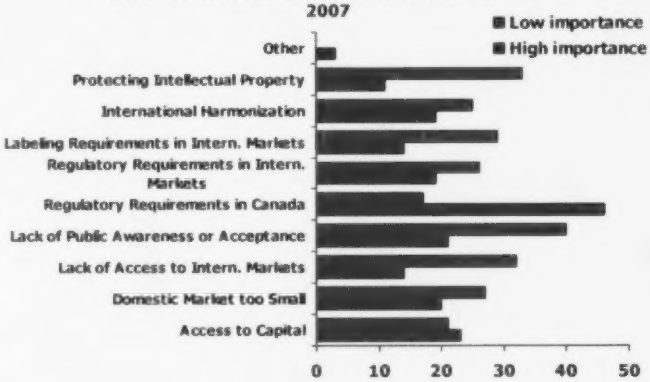
Chart B3.18
R&D Expenditures as Percentage of Revenues by Functional Food and Natural Health Product Firms 2006 and 2007

Source: Statistics Canada, Functional Foods and Natural Health Products Survey, 2007.

Regulatory requirements continue to be perceived to restrict the competitiveness of FFNH product firms

- **About 46% of firms producing FFNH products reported that regulatory requirements in Canada limit their competitiveness.** In particular, 31% of firms believed that labelling requirements were important obstacles preventing them from competing in international markets.

Chart B3.19
Perceived Obstacles Affecting the Competitiveness of Functional Food and Natural Health Product Firms
2007



Source: Statistics Canada, Functional Foods and Natural Health Products Survey, 2007.

SECTION C

Components of the Agriculture and Agri-Food System

SECTION C1

Consumers

Canadian consumers are typical of consumers in developed economies. On average, they allocate a relatively small percentage of their total personal disposable income to food. In fact, for the average Canadian, the food expenditure share is declining to under 10%.

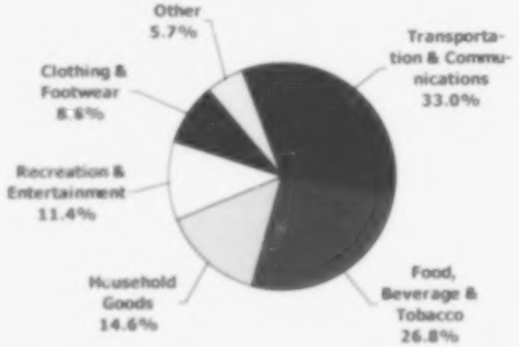
As incomes increase, consumers are able to look beyond staple foods to products with attributes that reflect their divergent preferences and values. In response to consumer demands, the food industry is offering a variety of products which embody not only consumer preferences for convenience and health, but also process attributes such as those which address environmental, fair trade and animal welfare issues.

Canadian consumers spent over $154 billion on food from stores and restaurants in 2008

- **Food, beverage and tobacco (FBT) expenditures represent the second-largest consumer goods expenditure category after transportation and communications.**

  In 2008, Canadians spent $111 billion (or 26.8% of their total personal expenditures on consumer goods) on FBT products purchased from stores.

Chart C1.1
Distribution of Personal Expenditures on Goods
2008



Source: Statistics Canada

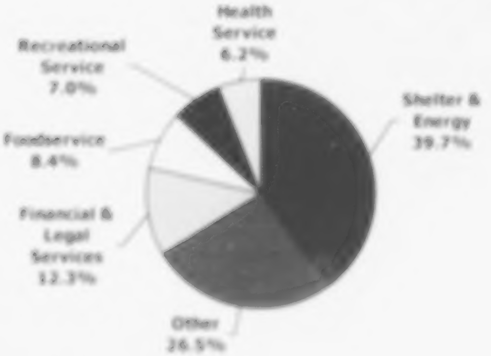
Notes: 1) Data is only for food purchased from retail stores, does not include foodservice.
2) Household Goods include furniture, appliances, supplies and equipment.
3) Other Goods include drugs and pharmaceutical products and personal effects not elsewhere classified.
4) Due to rounding, total may not add to the sum of its components.

- **Foodservice is the third-largest consumer service expenditure category.**

  In 2008, Canadians spent $43 billion on foodservice, accounting for 8.4% of personal expenditures on consumer services in Canada.

  Together, food expenditures at retail and foodservice establishments ($154 billion), accounted for 17% of personal expenditures on consumer goods and services.

Chart C1.2
Distribution of Personal Expenditures on Services
2008



Source: Statistics Canada

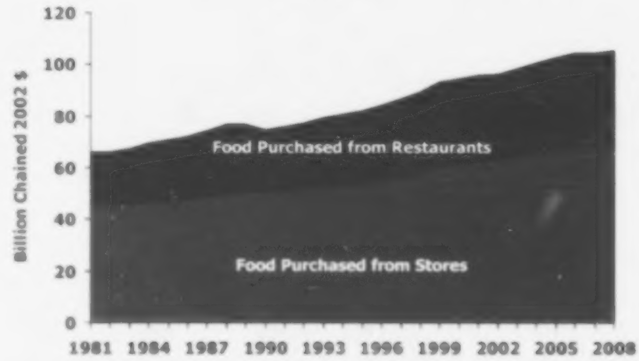
Notes: 1) Other Service include expenditures on accommodation services, personal care, household maintenance and childcare, education and cultural services, operating expenses of non profit organizations and other auto-related services.
2) Due to rounding, total may not add to the sum of its components.
3) Foodservice numbers provided include meals eaten outside the home.

Real personal expenditures on food from stores and from restaurants in Canada stabilized in 2008, after rising steadily over time

- **Total real personal expenditures on food purchased from stores and from restaurants were around $68 billion and $36 billion, respectively.**

  On a per capita basis, food expenditures declined to $3,143 per person with 34% being spent on restaurant meals.

Chart C1.3
Personal Expenditures on Food
1981-2008

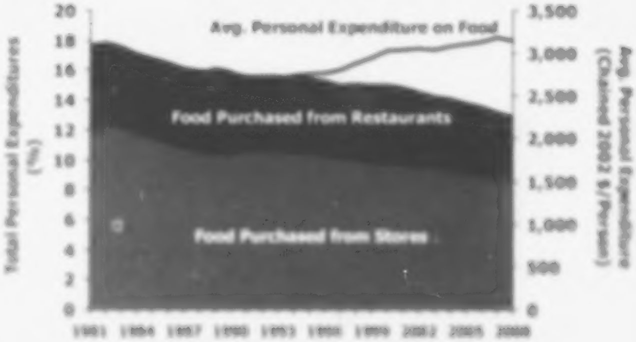


Source: Statistics Canada and AAFC Calculations.

- **Average real personal food expenditures per person have increased over time, at the same time as the share of food in total personal expenditures has been declining.**

  Canadians allocated only 13% of their total personal spending to food in 2008, down from 17% in 1981. Consumers are spending a greater share on other goods and services such as housing, computers, telecommunications and electronic equipment.

Chart C1.4
Average Personal Expenditures on Food
as a Share of Total Personal Expenditures
1981-2008



Source: Statistics Canada and AAFC calculations.

Notes: 1) Does not include expenditures on alcoholic beverages and tobacco.
2) Food purchased from restaurants includes spending in restaurants, cafeterias and on take-out meals.

Relative to other developed countries, Canadian households allocate a relatively small share of spending to food, as do citizens in the U.S.

- **Canadian households are typical of those in developed economies.**

On average, households in developed economies have high standards of living and allocate a relatively small percentage of their personal disposable income to food.

In 2007, Canadian households allocated 9% of their total household expenditures to food and non-alcoholic beverages compared to 7% in the U.S., 11% in Germany and Australia and 14% in Japan.

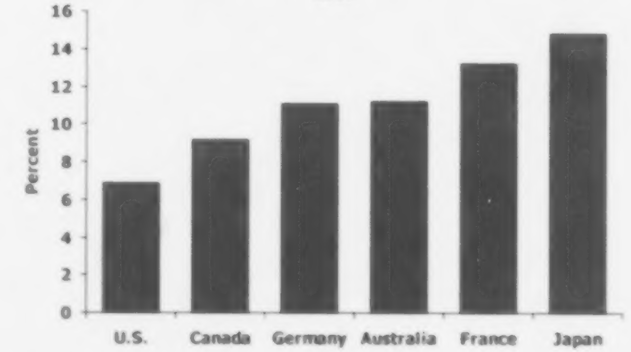


Chart C1.5
Share of Household Expenditures on Food and Non-Alcoholic Beverages in Selected OECD Countries
2007

Source: OECD.

- **Real personal disposable income per person continued to grow in Canada, reaching $35,000 in 2008.**

Real personal disposable income for Canadians increased 8.4% in 2008. Increases in Canadian labour income such as gains in wages and government transfers more than offset declines in investment income. However, the economic recession, which began in the third quarter of 2008, will not have a noticeable impact on annual income until 2009.

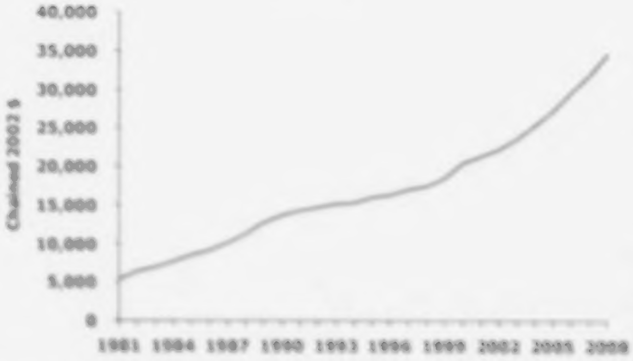


Chart C1.6
Real Per Capita Disposable Income
1981-2008

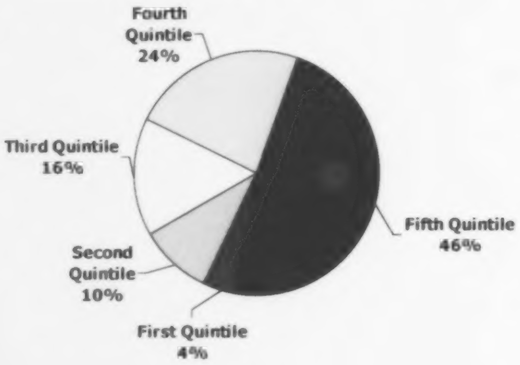
Source: Statistics Canada and AAFC calculations.

Across Canada, there are households with low incomes which risk becoming more food insecure, especially as the economy worsens

- **In 2007, the lowest-income Canadian households (first quintile) received only 4.2% of total Canadian gross personal income, while the highest-income Canadian households (fifth quintile) received 47%.**

  Compared to 2006, this represents a marginal increase for all income quintiles.

Chart C1.7
Distribution of Gross Household Income by Quintile*
2007



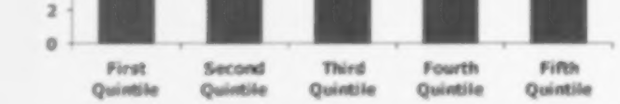
Source: Statistics Canada and AAFC calculations.

Note: * Quintile: Households are ranked in ascending order by total household income and are divided into five equal groups. The 1st quintile is the lowest 20% of households and the 5th quintile is the highest 20% of households.

- **In 2007, the one-fifth of Canadian households with the lowest income (first quintile) allocated 16.9% of their household expenditures to food at the retail level, up 1.5% from 2006.** This was the largest share and the largest increase among all income quintiles.

  On the other hand, the highest-income Canadians (fifth quintile) allocated only 7.9% of their expenditures to food at the retail level, down 0.1% from 2006.

Chart C1.8
Share of Household Food Expenditures by Income Quintile*
2007



Source: Statistics Canada and AAFC calculations.

Note: * Quintile: Households are ranked in ascending order by total household income and are divided into five equal groups. The 1st quintile is the lowest 20% of households and the 5th quintile is the highest 20% of households.

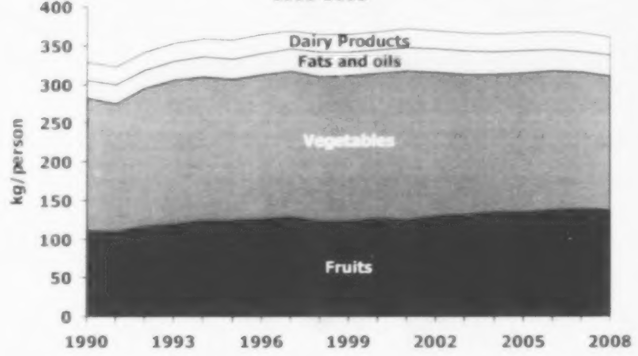
In Canada, per capita consumption of products such as fruits and vegetables and fats and oils have been increasing over time, while red meat and dairy consumption has remained steady

- **Canadian food preferences continue to change. The Canadian diet includes more fresh fruits, yogurts, cheeses, creams and fewer fats and oils.**

  In 2008, total fresh fruit consumption reached 137 kg per person, which is an increase of 26.14% from 1990. Most of the increase was in processed fruits.

  The consumption of fats and oils has declined from 2000 levels. However, Canadians are consuming more fat from cheese and cream products, including in their coffee.

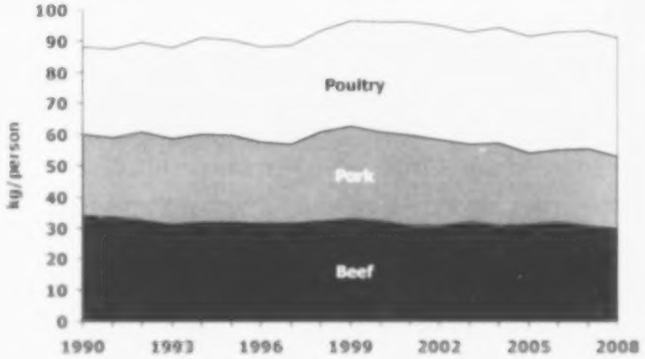
Chart C1.9
Per Capita Consumption of Dairy Products, Fruits and Vegetables and Fats and Oils
1990-2008



Source: Statistics Canada and AAFC calculations.
Note: Does not allow for losses, such as waste and/or spoilage in stores, households, private institutions or restaurants or losses during preparation.

- **Poultry consumption has increased overtime; it has inched up from 28.15 kg per person in 1990 to 38.8 kg per person in 2008.** Beef consumption, which has been on a relatively-steady trend downward since 1990, reached 29.34 kg per person in 2008. Pork consumption has been trending down since 2000 to reach 23.52 kg per person in 2008.

Chart C1.10
Per Capita Consumption of Beef, Pork and Poultry
1990-2008



Source: Statistics Canada and AAFC calculations.
Notes: 1) This does not adjust for losses such as waste and/or spoilage in stores. These data represent food available for consumption and not actual quantities of food consumed since they don't allow for losses such as waste and/or spoilage in stores, households, private institutions or restaurants.
2) In retail weight.

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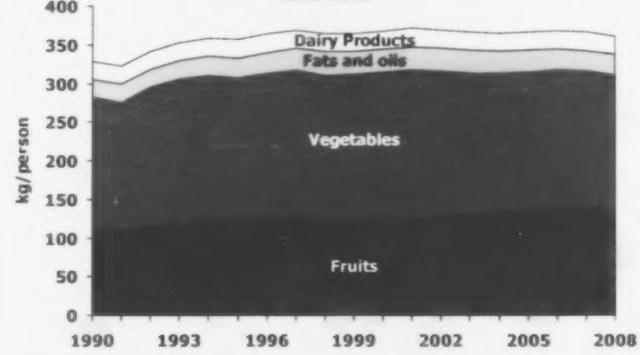

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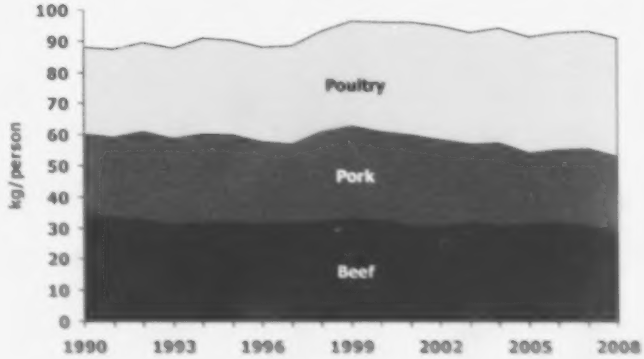


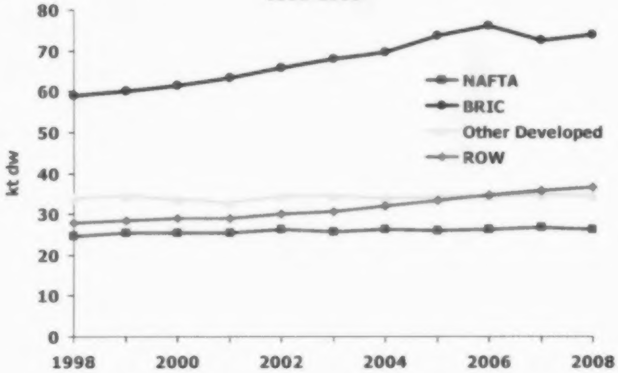
Source: Statistics Canada and AAFC calculations.
Notes: 1) This does not adjust for losses such as waste and/or spoilage in stores. These data represent food available for consumption and not actual quantities of food consumed since they don't allow for losses such as waste and/or spoilage in stores, households, private institutions or restaurants.
2) In retail weight.

This contrasts with emerging economies such as China and India, where consumption of red meat and vegetable oils has been growing rapidly as middle class income has risen

- **The consumption of red meat increased by a moderate 6% in NAFTA countries and less than 3% in other developed countries, such as the EU, Japan and Korea.**

  However, consumption in the emerging BRIC countries (Brazil, Russia, India and China) has risen more than 25% in the last decade, mainly due to increased population and middle-class income growth.

Chart C1.11
Consumption of Red Meat by Country
1998-2008



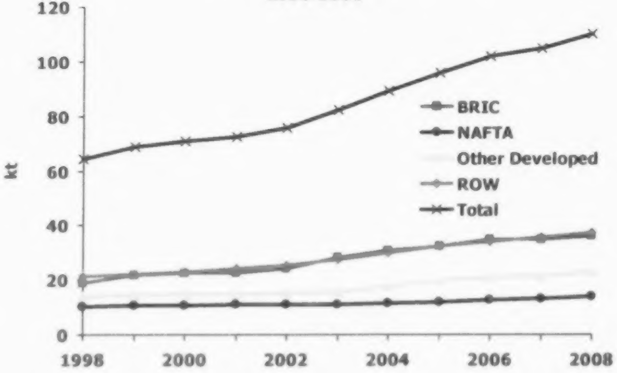
Source: OECD-FAO and AAFC calculations.

- **In the last decade, the consumption of vegetable oils has been rising worldwide as well.**

  The fastest growth in the consumption of vegetable and animal oils continues to occur in the BRIC and other emerging countries where incomes are rising.

  In developed countries, the demand for oilseed products with specific health attributes, such as low levels of saturated fats and transfats, is expected to increase.

Chart C1.12
Consumption of Vegetable Oils by Country
1998-2008



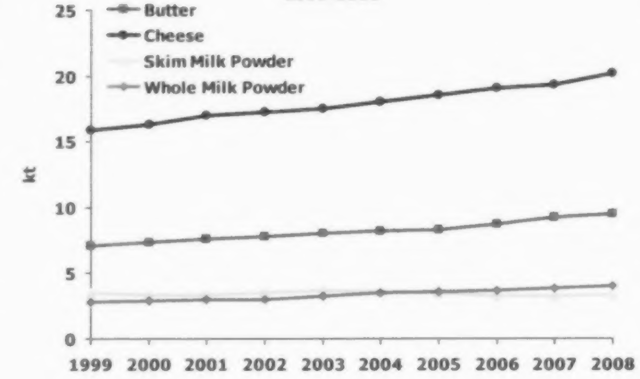
Source: OECD-FAO and AAFC calculations.

Dairy product consumption has also risen in many emerging economies around the world, while traditional commodities, such as wheat, have risen more slowly

- **Over the last decade, the global consumption of dairy products has been increasing significantly. The consumption of butter and whole milk powder worldwide increased by more than 30% since 1999, while the consumption of skim milk powder decreased on a global scale.**

  According to the OECD, Asian countries are expected to increase their consumption of cheese and butter. Skim milk powder and whole milk powder consumption is expected to increase in Asia and Chile.

Chart C1.13
Global Consumption of Dairy Products
1999-2008



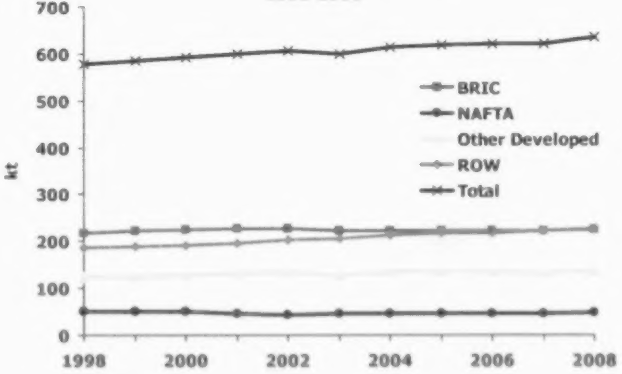
Source: OECD-FAO and AAFC calculations.

- **Over the last decade, wheat consumption has been increasing at a slow, steady rate worldwide except in the NAFTA countries.**

  Canada's past investments in R&D and its natural advantages have led Canada to become the eighth-largest producer of wheat in the world, and one of the top five exporters.

  Canada competes with Australia, the U.S., Russia and Argentina and sells to over 70 countries.

Chart C1.14
Consumption of Wheat by Country
1998-2008



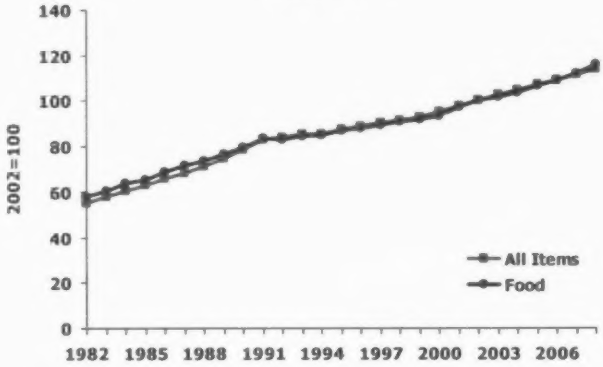
Source: OECD-FAO and AAFC calculations.

Retail food price inflation in Canada edged up in 2008, having only a minor impact on Canadian consumers

- **Food price inflation has generally kept pace with overall consumer price inflation over the past several decades.**

Between 1982 and 2008, food prices rose at an annual average rate of 2.7%, while overall consumer prices rose at an annual average rate of 2.9%.

Chart C1.15
Consumer Food Price Indices (CPI) for Food and All Items
1982-2008



Source: Statistics Canada.

- **Retail food price inflation of 3.5% in 2008 was higher than in the previous year and higher than overall inflation.**

Higher commodity prices, exchange rate fluctuations and seasonal factors drove up prices for red meat, bakery and cereal products and fresh fruits and vegetables.

However, because Canadian consumers generally allocate a small and declining share of their income to food, the impact on consumers was moderated.

Chart C1.16
Canadian Retail Food Price Inflation by Category
2007 and 2008

CATEGORY	INFLATION (%)	
	2007	2008
Overall CPI	**2.2**	**2.3**
Food	**2.7**	**3.5**
Food Purchased From Stores	**2.7**	**3.9**
Beef Fresh or Frozen	2.7	2.0
Pork Fresh or Frozen	0.6	1.4
Poultry Fresh or Frozen	6.6	3.5
Dairy Products	3.6	3.9
Eggs	5.8	4.1
Bakery and Cereal Products	4.0	12.1
Fresh Fruit	1.2	1.6
Fresh Vegetables	-0.1	1.4
Sugar and Confectionery	0.7	2.4
Fats and Oils	3.5	13.6
Food Purchased From Restaurants	**2.7**	**2.5**

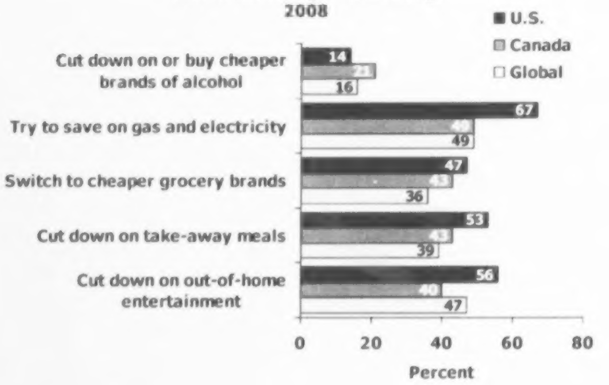
Source: Statistics Canada and AAFC calculations.

Higher prices for fuel and the economic recession had more of a significant impact on the buying patterns of Canadian consumers in 2008

- **The economic recession and cost of living increases in 2008, as a result of soaring fuel prices, forced Canadian consumers to adopt more cost-saving measures.**

Canadian consumers, like those in the U.S. and globally, responded to rising prices by trying to save money on gas and electricity by driving their cars less. In terms of food purchases, Canadian consumers primarily cut down on purchases of take-out meals and switched to cheaper grocery brands.

Chart C1.17
Percentage Reporting the Following Actions Due to the Rising Cost of Living
2008

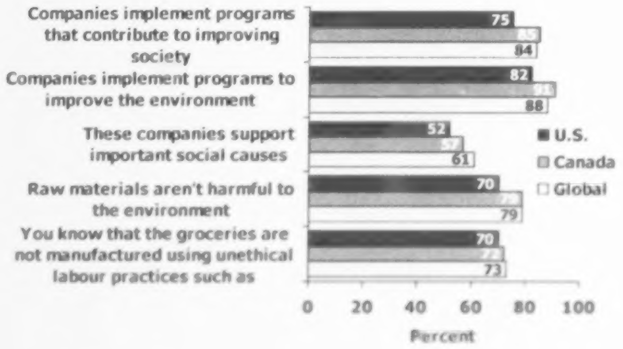


Source: The Nielsen Company.

- **Despite low consumer confidence, Canadian consumers still continue to be concerned about how manufacturers of grocery products address societal concerns.**

Canadian consumers are mostly concerned about companies improving the environment, society and unfair labour practices. However, Canadian consumers are less concerned about support to important social causes.

Chart C1.18
Percentage Responding "Very or Somewhat Important" to the Following Grocery Product Issues
2008



Source: The Nielsen Company

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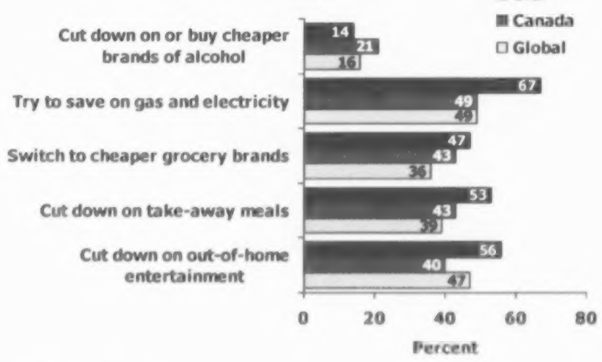

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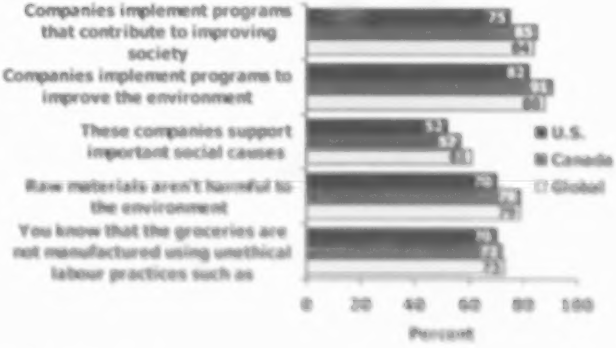


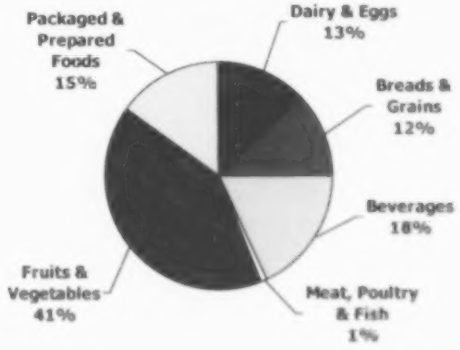
Source: The Nielsen Company.

Consumers increasingly look for food products with attributes they want to purchase such as organics

- **In 2006, certified organic product sales accounted for 0.9% of the $46.5 billion in total sales at supermarkets, up 0.2% from 2005.**

Canadian supermarkets sold $412 million worth of certified organic food products in 2006. Fresh products accounted for $157 million of all the certified organic foods sold through the grocery channel of supermarkets. Fresh vegetables accounted for $102 million of all organic food sales. Beverages accounted for $74 million in sales, and fruits accounted for $52 million. Dairy products and raw meat sales comprised $45 million and $3 million, respectively.

Chart C1.19
Organic Food Sold in Canadian Supermarkets
2006

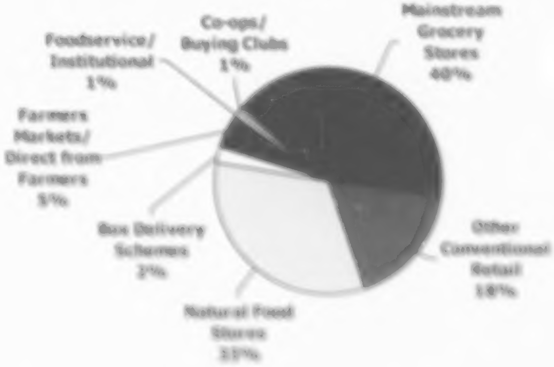


Source: The Nielsen Company, special to the Organic Agriculture Centre of Canada (OACC).

- **In 2006, total retail sales of certified organic products in Canada were estimated at just over $1 billion.**

In addition to the $412 million sold by mainstream grocery stores, natural food stores sold $330 million in certified organic products. Other conventional retail stores, such as drug stores and other specialty stores, accounted for $175 million in organic sales. Direct sales from farmers' markets and the farm gate were estimated at $50 million. Organic food box delivery companies and co-ops/buying clubs' sales totalled $20 million. The remaining $10 million in sales was made up of foodservice/ institutional and restaurants.

Chart C1.20
Retail Market Channels of Organic Food Sales Estimates
2006



Source: The Nielsen Company, special to the Organic Agriculture Centre of Canada (OACC).

SECTION C2

Food Distribution

(Retail/Wholesale and Foodservice)

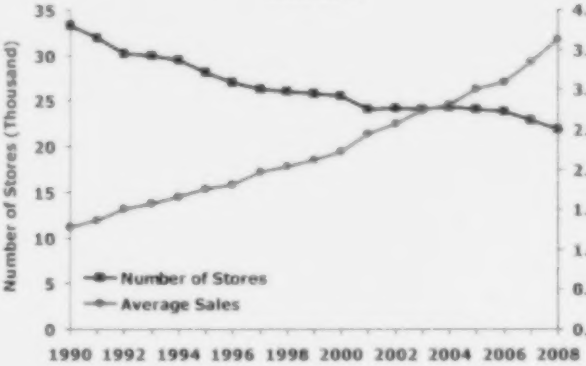
Food retail, wholesale and distribution industries are major components of Canada's agriculture and agri-food system. Food retailers are on the front lines, responding to changing consumer and societal needs, a changing marketplace and changing players (e.g., Wal-Mart) by restructuring to maintain or increase their market share, while forming alliances and networks with upstream suppliers in the supply chains. Foodservice establishments also continue to adjust product and service offerings to increase sales in response to a fiercely competitive restaurant sector and competition from food retailers who are offering consumers convenience with an increasing variety of prepared food and take-home meals.

Food retailing continues to consolidate

- **Significant store rationalization has occurred during the past decade, with a move to larger operations.**

  Traditional supermarket chains have consolidated as they have faced increasing competition. The total number of food stores continues to decline, down to 21,810 in 2008 from 22,870 in 2007. The three-largest food retailers in Canada are Loblaw Cos. Ltd. ($31.7 billion estimated sales[1]) with 1,036 stores, Sobeys Inc. ($15.6 billion) with 1,332 stores, and Metro Inc. ($11.9 billion) with 558 stores in Ontario and Quebec.

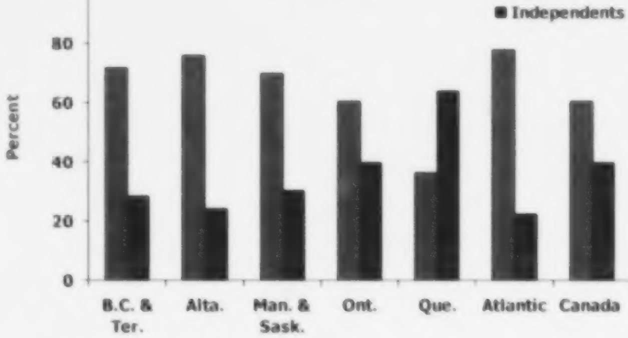
Chart C2.1
Number of Canadian Food Stores and Average Sales
1990-2008



Source: Canadian Grocer, Statistics Canada and AAFC calculations.

- **Food retailer concentration is also increasing.** There are only two pan-Canadian grocery store chains in Canada, Loblaw Cos. Ltd. and Sobeys Inc. Overall, 60.3% of retail food sales are from grocery store chains. However, the dominance of chains as a percentage of sales varies greatly by province. Chains are most important in the Atlantic provinces (77.8%) but much less important in Quebec (36.4%).

Chart C2.2
Share of Canadian Food Store Sales Chains vs. Independents
by Region
2008



Source: Canadian Grocer Magazine, February 2009

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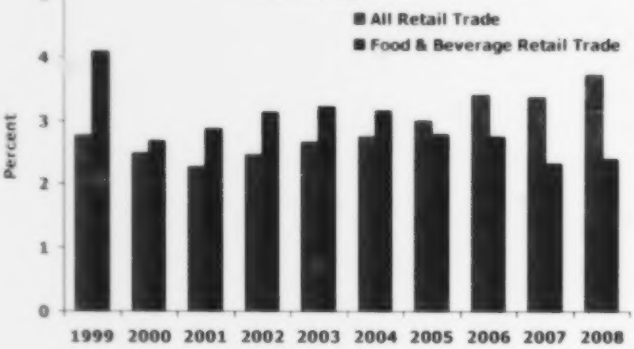
[1] Estimate sales sourced from Canadian Grocer 2009 Who's Who (CIBC World Markets).

Canadian food and beverage retailers have experienced declining profit margins since 2003, which stabilized in 2008

- **The profit margins of Canadian food and beverage retailers continue to remain below those of all retailers.**

Up until 2005, profit margins of non-food retailers were below those of food and beverage retailers, but have since risen above them. This reflects the increase in competition from non-food retailers such as Wal-Mart, drug stores and others. Since 2000, the profit margins of food and beverage retailers have averaged under 3% annually.

Chart C2.3
Average Profit Margin Ratio*
for Food and Beverage Retailers
1999-2008



Source: Statistics Canada, Quarterly Financial Statistics for Enterprises.

Note: * See Glossary for definition of the profit margin ratio and non-financial industries. Does not include government-controlled co-operatives, for example LCBO, SAQ.

Food and beverage stores' share of food sales continues to decline, while general merchandise stores' share is still rising

- **Department stores and gas stations are increasingly selling food items, while traditional food retailers/wholesalers have expanded their non-food sections.**

In 2007, for the first time, sales of food and beverages became the largest sales category for general merchandise stores. General merchandisers now account for 10.9% of the food and beverage sales market, up from 7.4% in 1998.

Food and beverage sales in general merchandise stores grew by 14% in 2008 compared to 2007; while food and beverage sales in food and beverage stores grew by 4%.

Chart C2.4
Food and Beverage Sales by Food Retail Channel
1998 vs. 2008

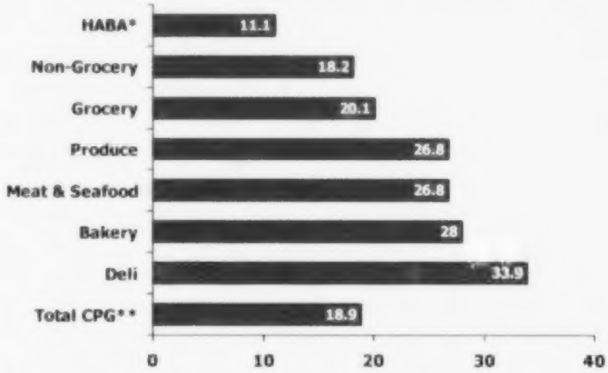
RETAIL CHANNEL	1998	2008
	PERCENT	
Food and Beverage Stores	87.7	84.6
General Merchandise Stores	7.4	10.9
Gas Stations and Automotive Dealers	2.6	2.6
Drug Stores	1.8	1.6
Other	0.5	0.3

Source: Statistics Canada, Quarterly Retail Commodity Survey.

- **In 2008, private label products accounted for a significant share (19%) of total grocery sales, and this is expected to grow in importance during the recession in 2009.** For Loblaw Cos. Ltd. alone, this share was 24% in 2007. Development of private label products remains a key competitive strategy for large retailers to attract and retain customers. The main private label brand for Loblaw Cos. Ltd. is *President's Choice* and for Sobeys Inc. is *Compliments*. Both of these private label brands now make up a greater share of total sales for Loblaw Cos. Ltd. and Sobeys Inc.

The share of sales of private label brands was highest for the deli, bakery and meat & seafood departments of grocery stores at 33.9%, 28% and 26.8%, respectively. Growth in private label brands was also much more significant than name brand products for some food departments. For example, private label products in deli and in produce departments grew by 13% and 32%, respectively, while name brand products in deli departments decreased by 2% and in produce departments, increased by 5%.

Chart C2.5
Private Label Share of Grocery Sales by Department
2008



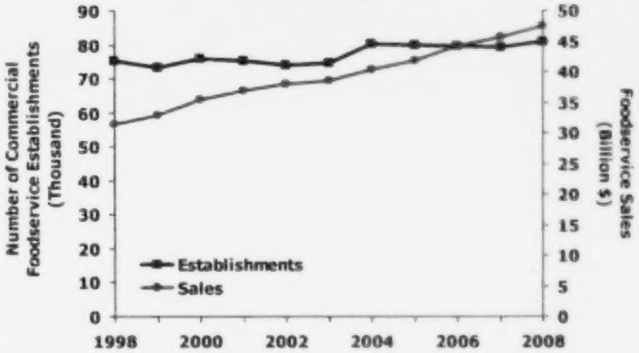
Source: The Nielsen Company.
Notes: * Health and Beauty Aids (HABA).
** Consumer Packaged Goods (CPG).

Foodservice sales continue to grow and bankruptcies remain low

- **Commercial foodservice sales have increased by 34% during the last decade, while the number of establishments has stabilized, growing by only 7%.**

Commercial food sales were valued at $47.4 billion in 2008, representing a 4% increase since 2007. In 2008, there were around 80,900 commercial foodservice establishments in Canada, 6% in the Atlantic provinces, 23% in Quebec, 40% in Ontario, 16% in the Prairies and 15% in British Columbia.

Chart C2.6
Commercial Foodservice Sales and Number of Establishments
1998-2008

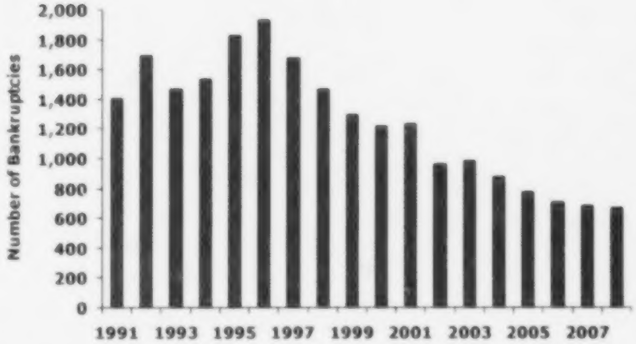


Source: Statistics Canada.

- **Commercial restaurant bankruptcies fell by 2% in 2008 compared to 2007.**

The number of bankruptcies has declined considerably and fairly consistently throughout the last decade or so, from a high of 1,933 in 1996 to 671 in 2008. This may increase in 2009 as a result of the recession.

Chart C2.7
Commercial Restaurant Bankruptcies
1991-2008



Source: Canadian Restaurant and Foodservice Association, Quarterly InfoStats.

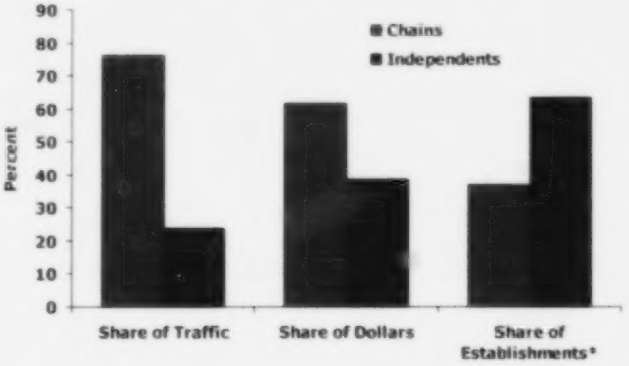
Foodservice and drinking places, according to Statistics Canada, comprises establishments primarily engaged in preparing meals, snacks and beverages to customer order for immediate consumption on and off the premises. This subsector does not include foodservice activities that occur within establishments such as hotels, civic and social associations, amusement and recreation parks, and theatres. However, leased foodservice locations in facilities such as hotels, shopping malls, airports and departments stores are included. The industry groups within this subsector reflect the level and type of service provided.

Canadians have a large choice of foodservice outlets to choose from

- **There are about twice as many independent restaurants as there are chain restaurants in Canada. However, independent restaurants account for only 38.5% of total sales and less than 25% of customer traffic.**

  In 2008, chain sales at restaurants grew faster than sales at independent restaurants, by 6.5% and 3.4%, respectively. The top 50 foodservice companies account for 48% of industry sales and about 27% of establishments.

Chart C2.8
Foodservice Market Share Chains vs. Independents
2008



Source: Canadian Restaurant and Foodservices Association.
Note: Data refers to chain and independent foodservice sourced from restaurants and retail stores.
*Establishment's share is based on 2007 data.

- **When Canadians eat out, they tend to prefer more to less service.** More than one-third (36%) of all sales in commercial foodservice occurs at full-service restaurants.

  Commercial foodservice sales increased by 4.2% in 2008, faster than non-commercial foodservice sales, which increased by 2.5%. Total foodservice sales (i.e., commercial and non-commercial foodservice) were estimated at $59.7 billion in 2008.

Chart C2.9
Market Share by Foodservice Category
2008

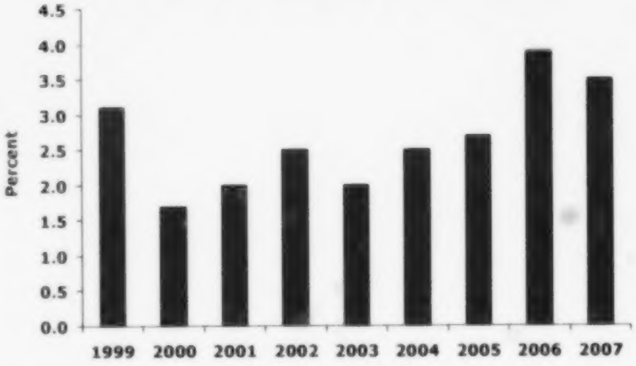
2008 PRELIMINARY	(MILLION $)	PERCENT
Commercial Foodservice	**47,458**	**80**
Full-Service Restaurants	21,632	36
Limited-Service Restaurants	19,604	33
Contract and Social Caterers	3,839	6
Pubs, Taverns and Nightclubs	2,383	4
Total Non-Commercial Foodservice	**12,222**	**20**
Accommodation Foodservice	5,597	9
Institutional Foodservice	3,243	5
Retail Foodservice	1,164	2
Other Foodservice	2,218	4
Total Foodservice	**59,680**	**100**

Source: Canadian Restaurant and Foodservices Association and AAFC calculations.
Note: 2008 figures are preliminary.

Canadians continue to spend more on restaurant meals, but profit margins decreased in 2007

- **Foodservice and drinking establishments saw a decrease in average profit margins from 3.9% in 2006 to 3.5% in 2007.** This was the first time since 2003 that profit margins for restaurant meals decreased. Prior to 2007, profit margins for restaurant meals had been growing steadily throughout most of this decade, from a low of 1.7% in 2000 to a high of 3.9% 2006.

Chart C2.10
Profit Margins for Foodservice and Drinking Establishments
1999-2007



Source: Statistics Canada, Financial and Taxation Statistics for Enterprises, Annual.

SECTION C3

Food, Beverage and Tobacco (FBT)

The domestic food, beverage and tobacco (FBT) manufacturing industry is the link between farmers, retailers, foodservice and domestic and global consumers. This link has become increasingly dynamic as FBT processors integrate with both farmers and retailers (domestically and abroad) to provide consumers with the products they demand. The Canadian FBT manufacturing industry has faced significant challenges in the last few years as a result of an appreciating dollar, tight labour markets and higher commodity prices, including energy. This has driven up labour costs and created higher input prices for raw materials, challenging the competitiveness of the sector.

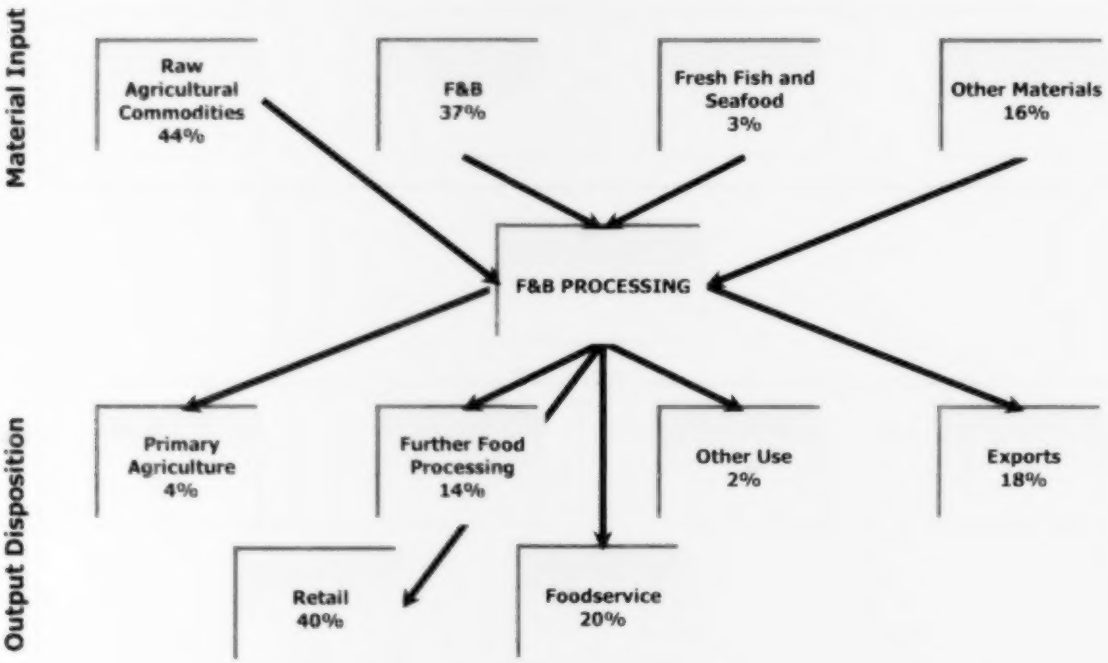
FBT processing is a large varied group that plays a key role in the agriculture and agri-food system

- **Food and beverage processing is a collection of industries ranging from primary processors, such as flour mills and abattoirs, to further processors, such as bakeries and meat processing plants.**

Agricultural commodities and fresh fish and seafood make up 47% of the total value of material inputs into food and beverage processing. Food and beverage products that are further processed make up another 37%. The remaining 16% of material inputs is largely made up of packaging materials, energy, chemical additives and equipment.

Food and beverage processing output is primarily sold to food retailers (40%), foodservice providers (20%), exported (18%) or sold to other food and beverage processors for further processing (14%).

Chart C3.1
Food Processing Input Composition and Output Disposition
2005



Source: Statistics Canada Input/Output Model and AAFC calculations.

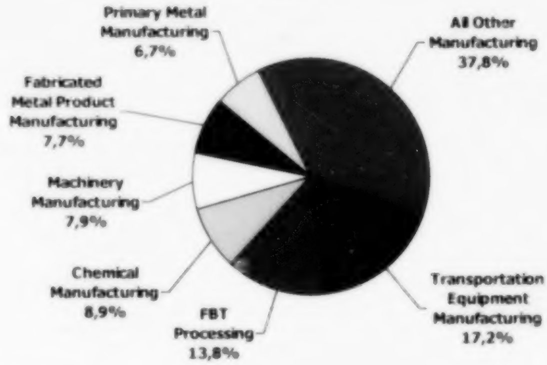
Note: Does not add up to 100% due to missing confidential data.

FBT processing is one of the most important manufacturing sectors in Canada

- **Food and beverage processing is the second-largest contributor to total manufacturing GDP in Canada, following transportation equipment manufacturing.**

In 2008, FBT processing's share of total manufacturing GDP was nearly 14%, with food processing alone accounting for almost 10%.

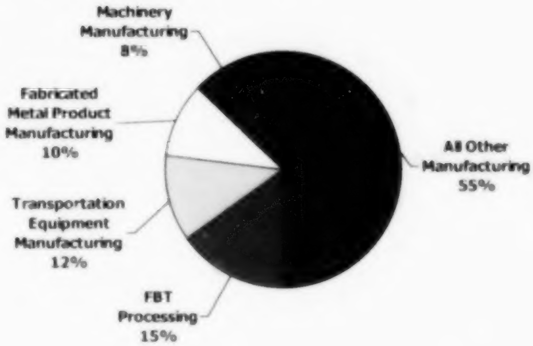
Chart C3.2
Distribution of Total Manufacturing GDP by Sector
2008



Source: Statistics Canada

- **Food and beverage processing is the largest manufacturing employer, accounting for about 15% of total manufacturing employment in 2008.**

Chart C3.3
Distribution of Total Manufacturing Employment by Sector
2008



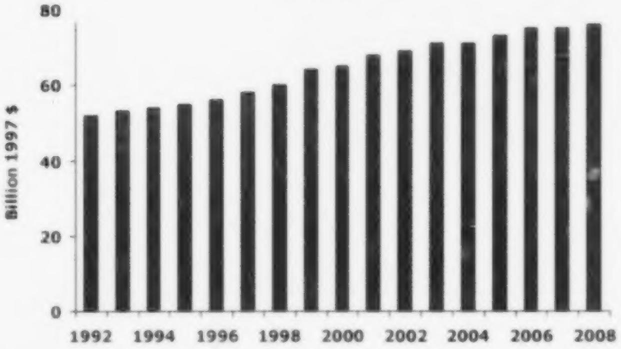
Source: Statistics Canada

Food and beverage processing output continues to grow, but at a slower rate than before

- **Since the early 1990s, the value of food and beverage processing shipments increased by $23 billion to reach $76 billion in 2008.**

The largest food and beverage processing industry is meat product processing, followed by dairy product processing and beverage processing. Meat and dairy product processing together accounted for about 46% of the real value of food and beverage shipments in 2008.

Chart C3.4
Value of Food and Beverage Manufacturing Shipments
1992-2008

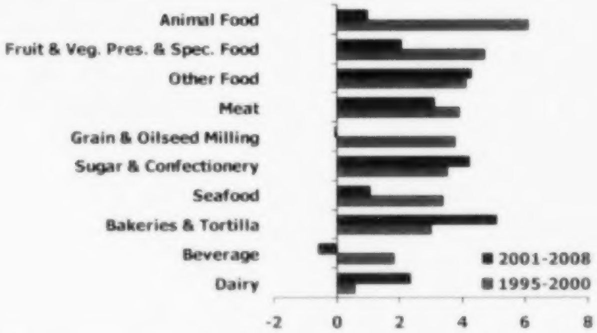


Source: Statistics Canada and AAFC calculations

- **Most food processing sub-industries have experienced a slowdown in growth relative to the late 1990s. Several notable exceptions include bakeries, sugar and confectionery and dairy product processing.**

Some industries, such as beverage manufacturing and grain and oilseed milling, have experienced slightly negative growth in recent years.

Chart C3.5
Growth in Shipment Value in Real Dollars
by Food and Beverage Processing Industry
1995-2008



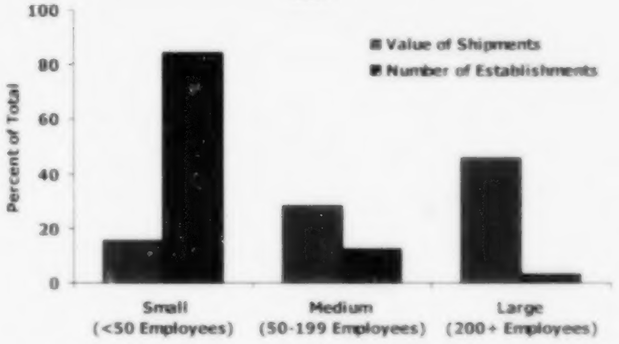
Source: Statistics Canada and AAFC calculations

Large food processing establishments account for 3% of the total number of establishments but half of the industry output

- **In 2007, 8,208 food processing establishments were operating across Canada.**

Large food processing establishments (with 200 or more employees) produce the bulk of output. In 2007, they comprised only 3% of the total number of establishments, but accounted for 46% of the value of shipments. In contrast, small establishments (with less than 50 employees) comprised 84% of the total number of establishments, but accounted for only 15% of the total value of shipments.

Chart C3.6
Distribution of Food Processing Shipments and Number of Establishments by Employment Size
2007



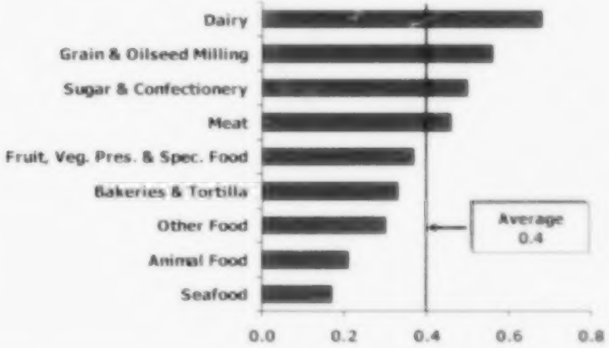
Source: Statistics Canada, special tabulation

Note: This data is not comparable to previous information due to changes in definitions.

- **Concentration ratios (CR4) in the food processing industry vary from the most concentrated dairy sector to the least concentrated seafood processing sector.**

The Canadian food processing industry has undergone significant structural change since the early 1990s and is becoming increasingly consolidated. The largest players in those industries have consolidated through mergers and acquisitions to achieve greater economies of scale in an effort to remain competitive at home and in the global market.

Chart C3.7
Concentration Ratio (CR4) in the Food Processing Industry
2006



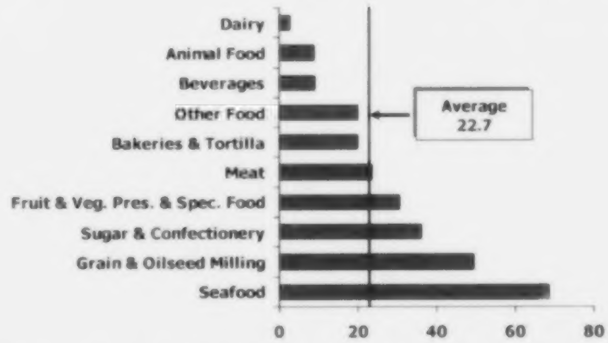
Source: Statistics Canada, Annual Survey of Manufacturing and Logging, special tabulation

Some food and beverage processing industries are more dependent on trade than others

- **About three-quarters of food and beverage processing shipments in Canada are destined for the domestic market a while the rest are exported.**

However, some sub-sectors are more export-oriented than others. For example, 68.5% of seafood product shipments and half of the grain and oilseed milling product shipments are exported.

Chart C3.8
Food and Beverage Processing Export Intensities by Sub-Industry
2008

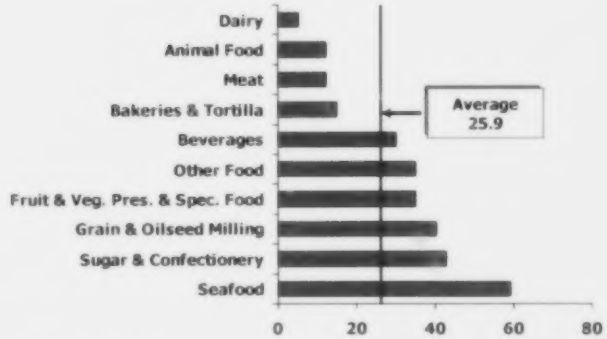


Source: Statistics Canada and AAFC calculations

- **Domestic food and beverage processors compete with imports here in Canada. On average, food and beverage imports accounted for 25.9% of the domestic market in 2008.**

In general, those sub-industries with the highest or lowest export intensities also have the highest or lowest import intensities.

Chart C3.9
Food and Beverage Processing Import Intensities by Sub-Industry
2008



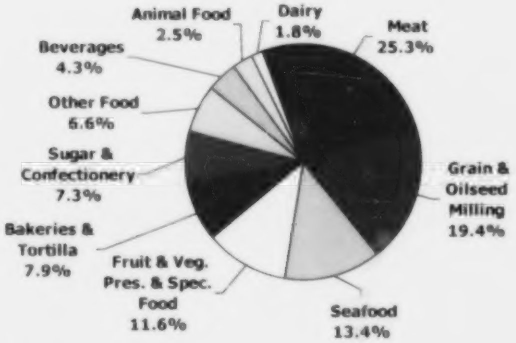
Source: Statistics Canada and AAFC calculations

Meat processing, which is Canada's largest food and beverage processing industry by export value, is highly reliant on the U.S. market

- **In 2008, over one-half of all food and beverage exports were accounted for by meat processing, grain and oilseed milling, and seafood processing.**

Meat processing alone accounted for one-quarter of food and beverage exports.

Chart C3.10
Share of Sub-Industry Exports of Total Food and Beverage Exports
2008

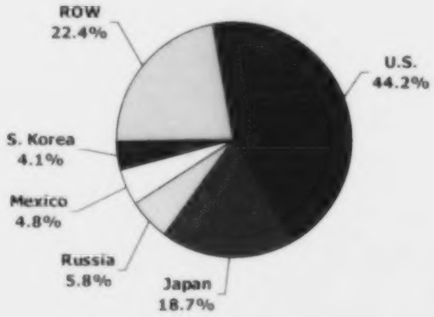


Source: Statistics Canada and AAFC calculations

- **Of the roughly $5 billion worth of meat products exported in 2008, 44% were destined for the U.S.**

Another 18.7% were shipped to Japan, the second most important export destination for the meat processing industry.

Chart C3.11
Destinations of Meat Processing Industry Exports
2008

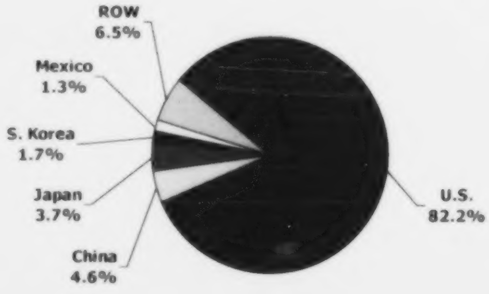


Source: Statistics Canada and AAFC calculations

Other large food and beverage processing sectors are also highly focussed on the U.S. for export sales

- **$3.9 billion in grain and oilseed milling products were exported in 2008, with the vast majority of exports destined for the U.S.**

Chart C3.12
Destinations of Grain and Oilseed Milling Industry Exports
2008

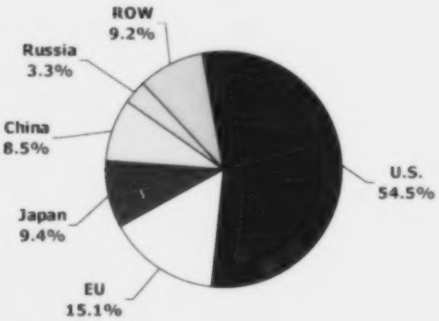


Source: Statistics Canada and AAFC calculations.

- **Over one-half of Canada's $2.7 billion in seafood exports in 2008 was shipped to the U.S. in 2008.**

  Other major markets included the EU, Japan and China.

Chart C3.13
Destinations of Seafood Industry Exports
2008

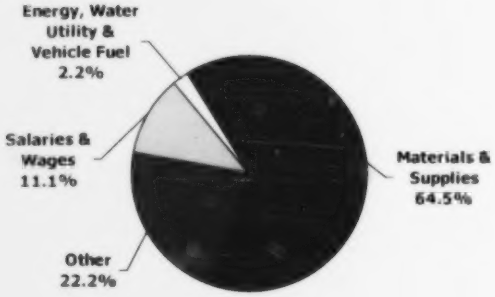


Source: Statistics Canada and AAFC calculations.

Rising input costs are squeezing margins in many food and beverage industries

- **Variable costs account for approximately 90% of total operating costs in the food processing industry.** The major input costs are materials and supplies and labour costs. Materials and supplies account for 65% of total variable costs in food and beverage processing establishments. Labour costs account for 11% of total expenses.

Chart C3.14
Variable Input Costs in Food Processing
2007

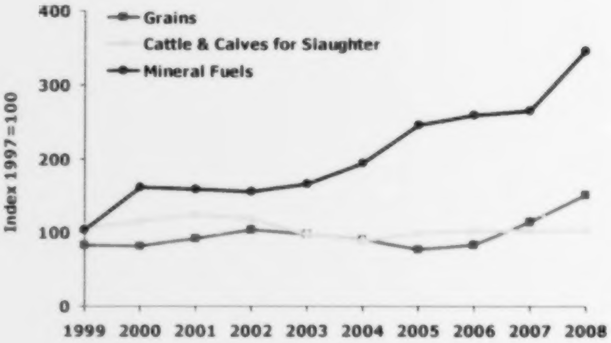


Source: Statistics Canada and AAFC calculations

- **The Raw Materials Price Index (RMPI) measures price changes for raw materials purchased by industries in Canada as inputs for further processing.**

In the last decade, the RMPI for mineral fuels has increased at a faster pace than other raw materials. RMPI for cattle has been steady over time, while the price index for grains has shown a steady increase since 2006.

Chart C3.15
Raw Material Price Index
1999-2008



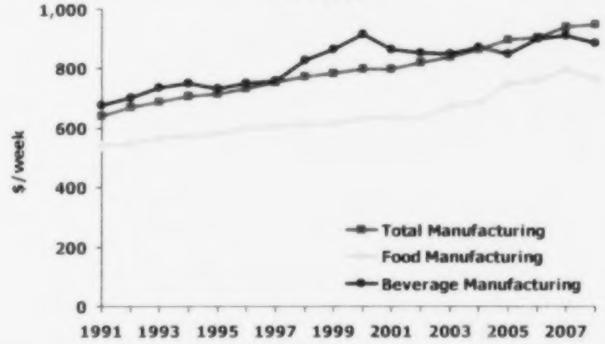
Source: Statistics Canada

While the cost of materials and supplies is the most important cost, labour costs are also important

- **Average weekly earnings in food processing have consistently been lower than that of total manufacturing, while the cost of labour in beverage manufacturing has fallen below those in total manufacturing since 2004.**

  The average weekly compensation in food manufacturing increased from $539 to $764 between 1991 and 2008 and exhibited trends comparable with total manufacturing.

Chart C3.16
Average Weekly Earnings in Food and Beverage and Total Manufacturing
1991-2008



Source: Statistics Canada, special tabulation.

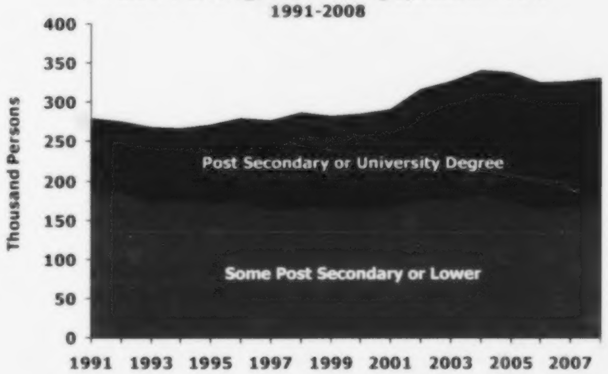
- **The educational level of persons employed in the food and beverage manufacturing industry has changed over time.**

  In the early 1990s, the majority of employees in food and beverage manufacturing had some post secondary or lower educational level. However, by the 1991-2008 period, employees with post secondary or higher educational levels represented almost half of the employees in food and beverage manufacturing in 2008.

  Gender characteristics of food and beverage manufacturing employment are different from those of total manufacturing. Over the years, the food and beverage manufacturing industry equally employed male and female employees, while males made up most of the labour force in total manufacturing.

  The most employed age group in the food and beverage and total manufacturing industries is between 25 and 54 years of age.

Chart C3.17
Composition of Labour Force
in Food and Beverage Manufacturing by Education Level
1991-2008



Source: Statistics Canada, Labour Force Survey, special tabulation.

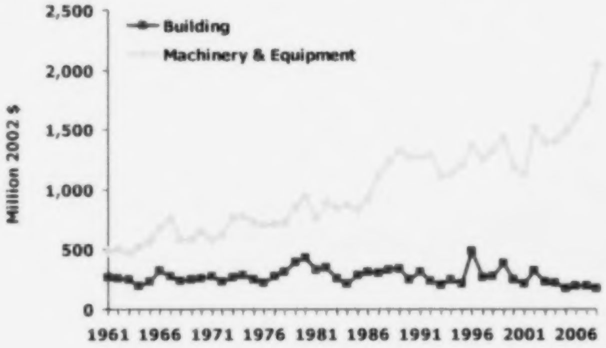
Investment in capital stock is an important factor in helping the food and beverage processing industry improve efficiency, raise productivity and lower costs

- **Capital investment in food processing has increased by an average of 0.3% annually between 1988 and 2008.**

Investment in construction of new buildings and machinery and equipment represents around 3/4 of total investment, while the other 1/4 goes to repair existing buildings and machinery.

Overall, over the period from 1988 to 2008, the share of investment in new construction and machinery and equipment decreased, while expenditures on repairs increased. This is reflected in the slower rate of increase in the capital stock of both buildings and machinery and equipment.

Chart C3.18
Capital Investment in the Canadian Food Processing Industry
1961-2008



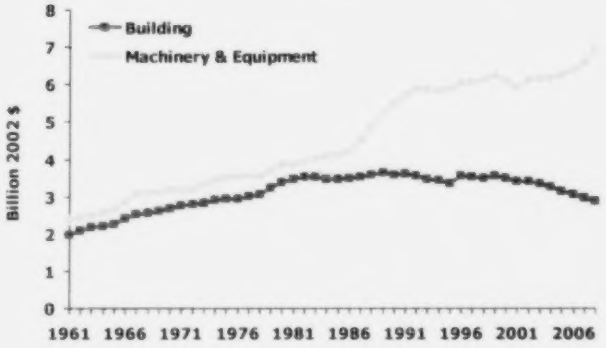
Source: Statistics Canada

- **Growth in the total stock of productive capital in food processing has slowed in the past decade, increasing by only 0.2% annually between 1988 and 2008.**

During this time period, the stock of machinery and equipment increased by 2.2% annually, but the stock of buildings decreased by 0.9%.

This indicates a significant change in the composition of capital, reflecting increased investment in machinery and equipment inputs due to the appreciated exchange rate since 2003, which lowered the cost of imported goods.

Chart C3.19
Capital Stock in the Canadian Food Processing Industry
1961-2008



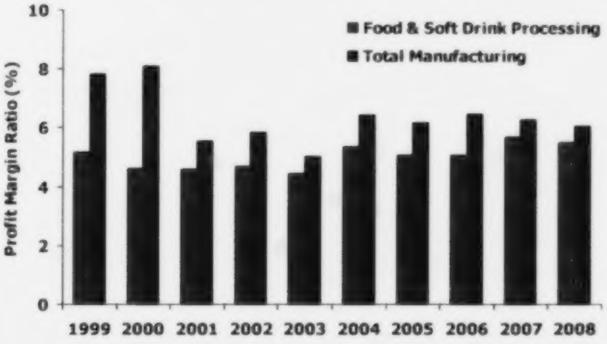
Source: Statistics Canada

Profit margins in food processing fell slightly in 2008

- **Profit margins in food and soft drink processing have been consistently lower than in total manufacturing, but the gap narrowed slightly in 2008.**

  These profit margins reflect the combination of higher raw material prices and reduced revenues in 2008. Some companies have restructured to focus on value-added operations, while others have consolidated to cut costs and remain competitive.

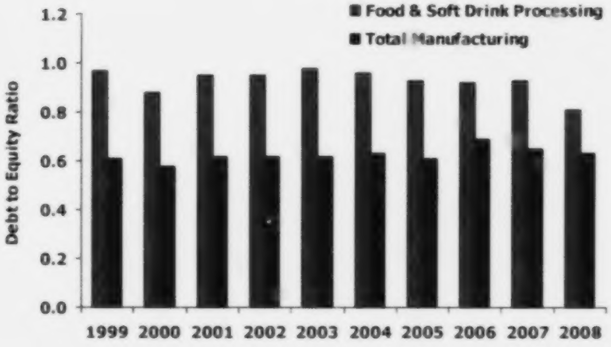
Chart C3.20
Profit Margin Ratio* in Food and Total Manufacturing
1999-2008



Source: Statistics Canada.
Note: *See glossary for definition of the profit margin ratio.

- **The food and soft drink industry's debt to equity ratio has fallen in 2008, but still remains higher than that of the total manufacturing.** Lower ratios reflect reduced borrowing costs to finance capital investments.

Chart C3.21
Debt to Equity Ratio* in Food and Total Manufacturing
1999-2008



Source: Statistics Canada.
Note: *See glossary for definition of the debt to equity ratio.

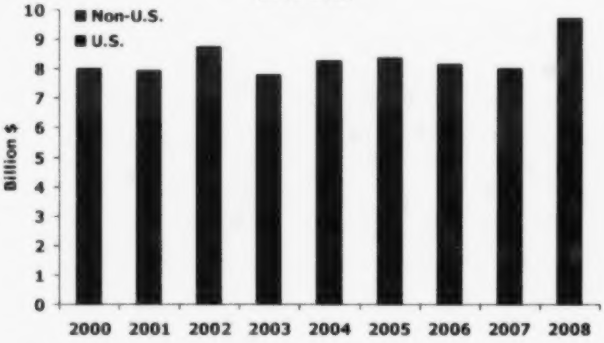
The source of Foreign Direct Investment (FDI) in food and beverage processing differs by subsector

- **The Canadian food processing industry is integrated with the U.S. industry.**

  Most of the FDI in the Canadian food processing industry originates from the U.S.

  The U.S. accounted for 65% of all inward food processing FDI in Canada in 2008.

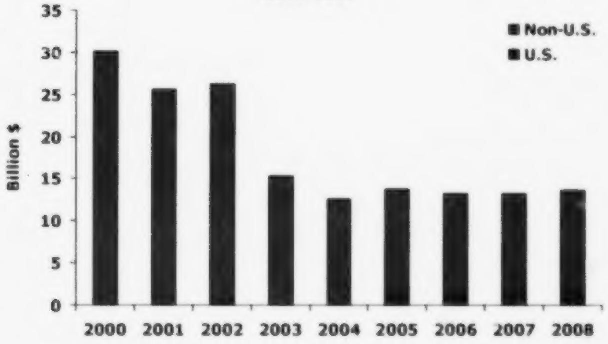
Chart C3.22
Stock of FDI in the Canadian Food Processing Industry by Country of Origin 2000-2008



Source: Statistics Canada and AAFC calculations.

- **FDI in the Canadian beverage processing industry, on the other hand, originated mostly from outside North America.**

Chart C3.23
Stock of FDI in the Canadian Beverage Processing Industry by Country of Origin 2000-2008



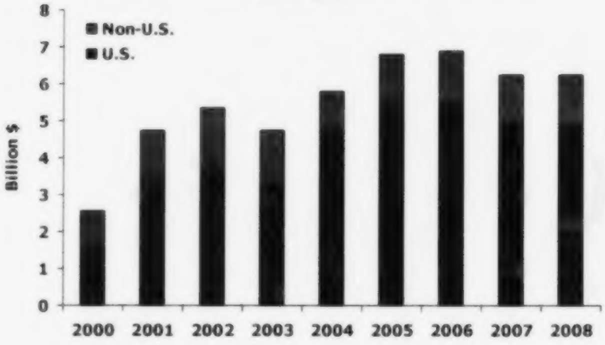
Source: Statistics Canada and AAFC calculations.
Note: NAICS classification system.
Figures for the latest year are estimates and subject to revisions by Statistics Canada.

Canadian food and beverage firms have also been investing abroad

- **Canadian companies have invested in food processing industries in other countries.**

  More than 77% of total outward food processing FDI by Canadian companies went to the U.S. in 2008.

Chart C3.24
Accumulated Outward Investment in the Food Processing Industry by Country of Destination
2000-2008



Source: Statistics Canada and AAFC calculations.

Note: NAICS classification system.
Figures for the latest year are estimates and subject to revisions by Statistics Canada.

SECTION C4

Primary Agriculture

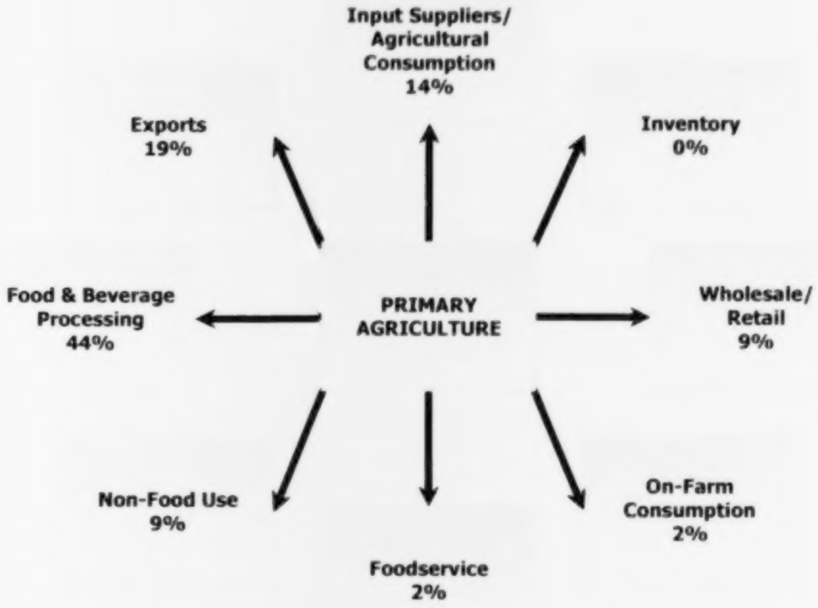
Agricultural producers are the foundation of the agriculture and agri-food system and have direct links to all stages in the supply chain. Hence, developments in commodity markets and other sectors in the chain, such as production and price trends, have impacts on the performance of primary agriculture. At the disaggregated level, farms are diverse with different business strategies and management skills and also differ by typology, farm size and type. This diversity explains the differences in performance between farms.

Agricultural producers have direct links to all the stages in the agri-food supply chain

- **The Canadian food and beverage food and beverage processing industry is the single most important market for agricultural products.** It utilizes almost half (44%) of the value of agricultural products available in Canada.

  Agricultural producers have many alternative marketing choices. In 2005, 19% of farm production was exported directly (a portion of which is directed to food and beverage and subsequently exported as food products), 14% was consumed within primary agriculture as inputs (as feed, seeds, etc.), 11% went to food distribution (consisting mostly of fresh fruits and vegetables), and another 9% was directed to non-food uses (bioproducts).

Chart C4.1
Disposition of the Value of Agricultural Production
2005



Source: Statistics Canada Input/Output Model and AAFC calculations.

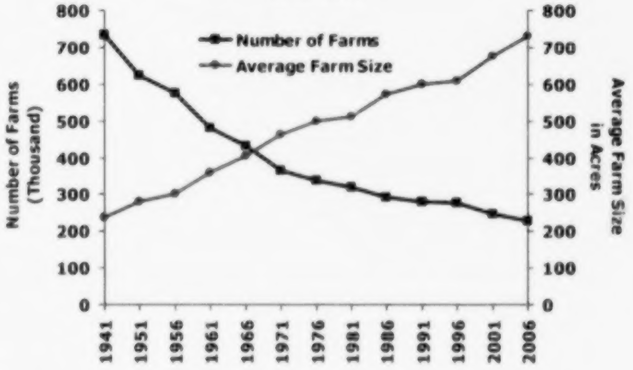
Primary agriculture continues to consolidate

- **Over the past 50 years, average farm size has tripled while the number of farms in Canada has declined.**

In 2006, there were 229,373 farms, representing a 7% decline from 2001. This compares to an 11% decline between 1996 and 2001.

While farm numbers are declining, the average farm size is becoming larger. Technological advances and increasing productivity have enabled increasing scale of operations and consolidation.

Chart C4.2
Number and Size of Farms in Canada
1941-2006

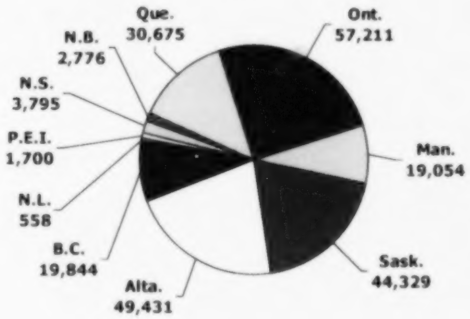


Source: Statistics Canada, Census of Agriculture, various years.

- **The number of farms declined in all provinces in 2006.**

Ontario and Alberta had the most farms in 2006 at 57,211 and 49,431, respectively. Saskatchewan and Newfoundland reported the largest decline in the number of farms between 2001 and 2006 at 12% and 13%, respectively while British Columbia reported the smallest decline at 2%.

Chart C4.3
Distribution of Farms by Province
2006



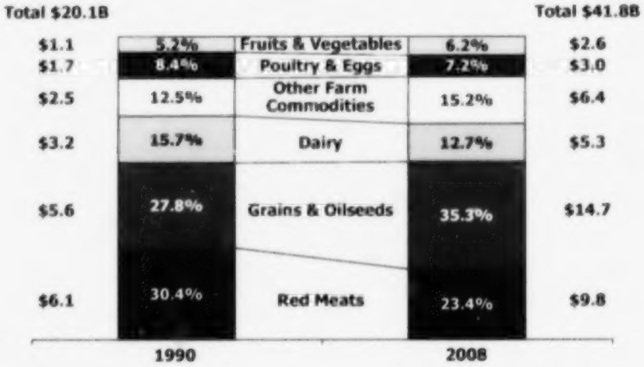
Source: Statistics Canada, 2006 Census of Agriculture.

Canada produces a diverse set of commodities, which vary by province

- **The commodity mix is changing as producers continue to diversify production.**

In 2008, farm market receipts totalled $41.8 billion, up from $20.1 billion in 1990. Since 1990, the contribution of fruits and vegetables, grains and oilseeds and other farm commodities has increased relative to a traditional mix of products such as dairy and red meats.

Chart C4.4
Farm Market Receipts by Commodity Share
1990 and 2008



Source: Statistics Canada.

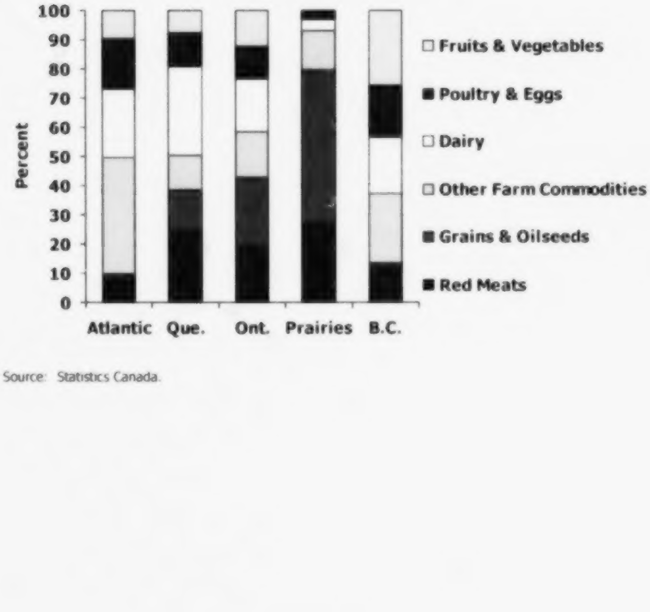
- **The product mix varies by province.**

In the Prairies, red meats and grains and oilseeds accounted for the largest shares of farm market receipts. In British Columbia, higher contributions came from fruits and vegetables and other farm products.

In Quebec and Ontario, dairy, red meats, and grains and oilseeds accounted for significant shares of farm market receipts.

In the Atlantic provinces, other farm commodities, such as potatoes and special crops, contributed 40% of farm market receipts in 2008.

Chart C4.5
Regional Farm Market Receipts
by Commodity Share
2008



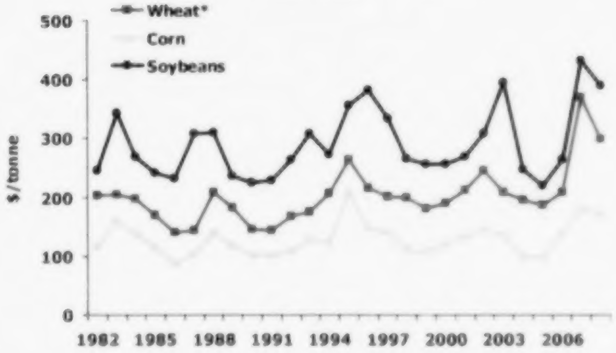
Source: Statistics Canada.

Commodity prices in 2008 reached a new plateau, impacting both the crop and livestock sectors

- **In the 2007-2008 crop year, wheat, corn and soybean prices in Canada increased by 77%, 30% and 43%, respectively, from the previous year. This was the result of stronger demand, lower stocks and lower production in world markets. In 2008-2009, grain and oilseed prices are expected to decline, but remain higher than historical averages.**

  The recent world economic downturn, combined with the sharp increase in world crop production resulting from last year's record prices and favourable weather conditions, have led to a strong decline in world prices in 2008-2009. The depreciation of the Canadian dollar has not entirely compensated for this decline, and as a result, prices in Canada of most of these commodities are also expected to fall significantly in 2008-2009.

Chart C4.6
Canada Corn, Wheat and Soybean Prices
1982-2008

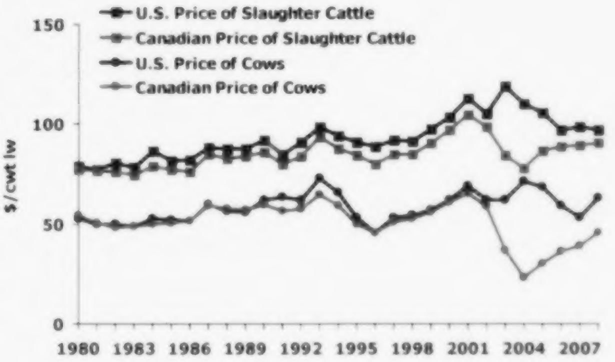


Source: Canadian Wheat Board and University of Guelph, Ridgetown College
Note: *Canada Western Red Spring

- **Cattle prices go through cycles that last between 8 to 10 years. Between 1980 and 2002, the differences between Canadian and U.S. prices were minimal. The ban on trade in animals with the U.S. following the Bovine Spongiform Encephalopathy (BSE) outbreak in 2003 exerted strong downward pressure on prices in Canada.**

  The resumption of trade in 2005 for cattle under 30 months of age, and in 2008 for animals over 30 months of age, should restore the historical relationship between prices. However, the implementation of the country of origin labelling (COOL) standard in 2008 may lead to further border price differentials in the future.

Chart C4.7
Cattle Price Cycle
1980-2008



Source: USDA ERS, Canfax and AAFC calculations

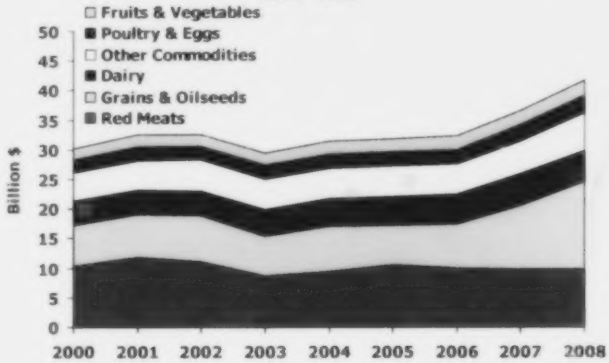
Farm market receipts in 2008 were boosted by rising prices as a result of these commodity market developments

- **Farm market receipts in 2008, at almost $42 billion, were 29% higher than the previous five-year average.**

Grain and oilseed receipts rose dramatically in 2008, as strong demand for grain and oilseed crops pushed prices higher. Combined with a good quality crop and record harvest, 2008 will be remembered as a year of record grain sales.

Cattle and calf producers have been recovering gradually since the BSE outbreak in 2003. Market receipts have been steady since 2005 and rose 2% in 2008, partly due to higher sales from the now fully-opened border with the U.S. Hog market receipts declined in 2008 for the fourth year in a row, and were 12% lower than the five-year average, due to falling hog prices.

Chart C4.8
Farm Market Receipts by Commodity
2000-2008

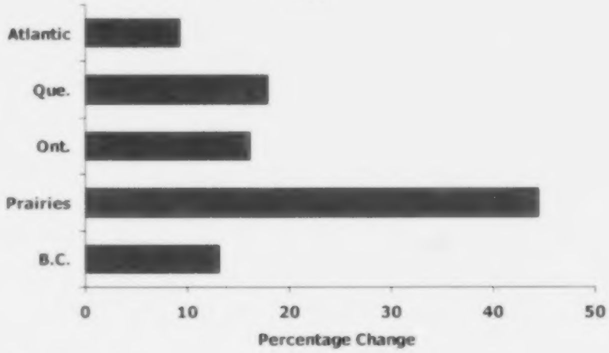


Source: Statistics Canada

- **On a regional basis, the Prairies experienced a rapid increase in farm market receipts due to high prices for grain and oilseed crops.**

In 2008, most of the other provinces experienced moderate growth in farm market receipts relative to the five-year average.

Chart C4.9
Regional Farm Market Receipts
Relative to Five-Year Average
2008



Source: Statistics Canada

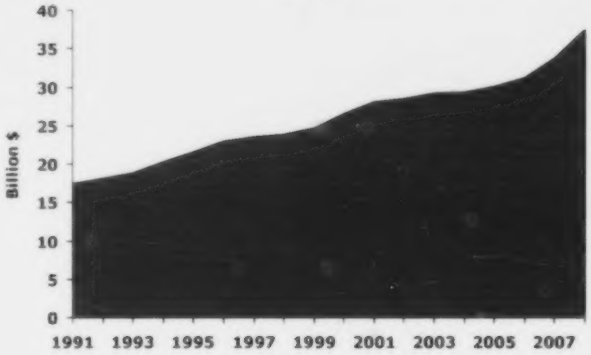
At the same time, farm operating expenses were also rising, though not as quickly as receipts

- **Producers saw their operating costs, before depreciation, increase by 11% in 2008 to $37.5 billion, the strongest annual rate of growth since 1981. Over half of this increase was due to soaring prices for fertilizers and fuel in 2008.**

  In addition, high grain prices led to a 15% increase in feed expenses for livestock producers.

  Expenses rose in all provinces, with the largest increases hitting the Prairie provinces.

Chart C4.10
Farm Operating Expenses
1991-2008

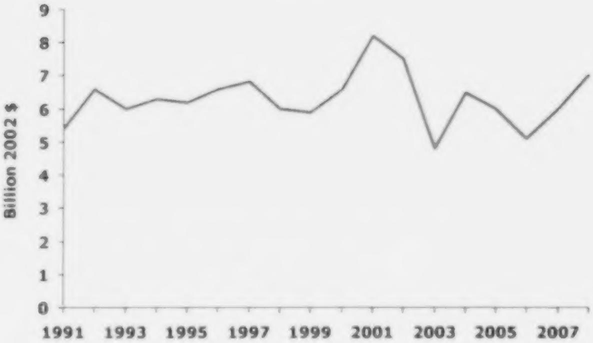


Source: Statistics Canada and AAFC calculations

- **As a result, aggregate net cash income in Canadian agriculture rose in 2008 above the previous five-year average of $6 billion. Over a longer period, the downward trend in real net cash income reflects lower production costs in an increasingly-efficient agricultural sector.**

  Aggregate net cash income masks the differences in the performance of farms in different sectors and size classes. The increasing net cash income levels in 2007 and 2008 were due to the strength of the grain and oilseed sector which hid difficulties faced by the cattle and hog sectors. Similarly, rising aggregate income masks the fact that larger farms tend to be more profitable than smaller farms in the same sector.

Chart C4.11
Real Aggregate Net Cash Income
1991-2008



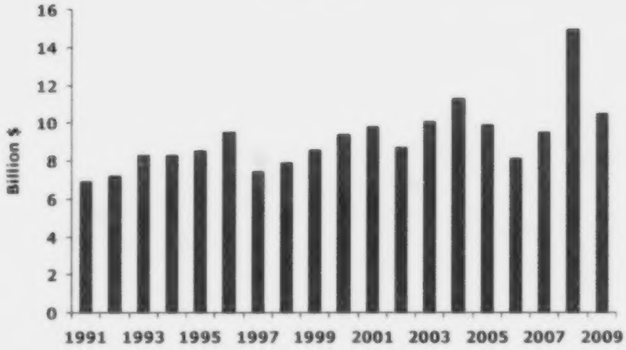
Source: Statistics Canada and AAFC calculations

Value-added in agriculture was larger in 2008 as a result of higher returns to farmers

- **Net value-added measures the value of economic production in the Canadian agriculture sector.**

Agriculture's net value-added reached a record $14.9 billion in 2008 as improved prices in the crop sector offset higher costs of production and lower receipts for red meat producers.

Chart C4.12
Net Value-Added in Agriculture
1991-2009*



Source: Statistics Canada and AAFC calculations.
Note: *2009 figures are forecasts.

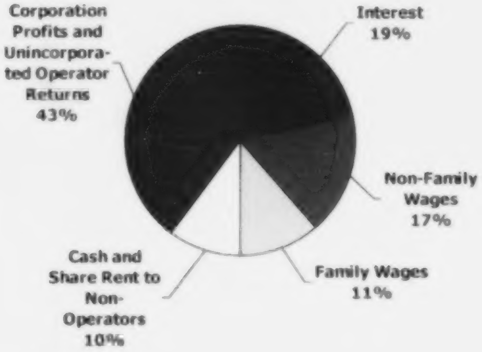
- **Net value-added measures the return to the various factors of production, including rent to non-operator landowners, interest to lenders and wages to non-family members.**

Interest and wages accounted for almost 50% of net value-added in 2008.

Corporation profits and unincorporated operator returns accounted for over 40% of net value-added in 2008.

A sizeable share (10%) of value-added is attributed to non-operator landowners.

Chart C4.13
Distribution of Net Value-Added
2008



Source: Statistics Canada and AAFC calculations.

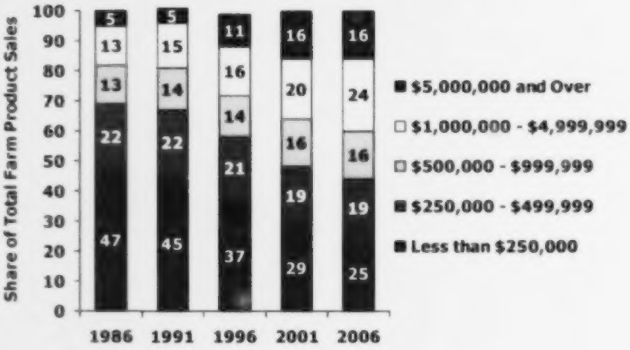
Large farms are increasing in number and importance

- **Million-dollar farms now account for 40% of gross farm receipts. Million-dollar farms doubled their share of gross revenue from 18% in 1986 to 40% in 2006.**

  Most million-dollar farms have revenues between $1 million and $1.5 million and this class shows steady growth.

  Five-million-dollar and over farms have expanded their share of gross receipts the fastest.

Chart C4.14
Distribution of Gross Farm Receipts by Revenue Class
1986-2006

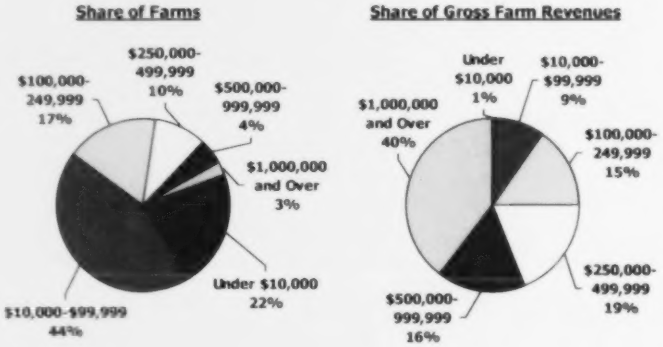


Source: Statistics Canada, 2006 Census of Agriculture.

- **While only 17% of census farms are large (gross revenues of $250,000 and over), they account for 75% of gross farm revenue and receive 59% of agricultural program payments.**

  Small and medium-sized farms (with gross revenues of $10,000 to $249,999) make up 61% of all farms in Canada, but account for only 24% of gross revenues and receive almost all of the remaining 41% of program payments.

Chart C4.15
Share of Farms and Gross Farm Revenues by Revenue Class
2006



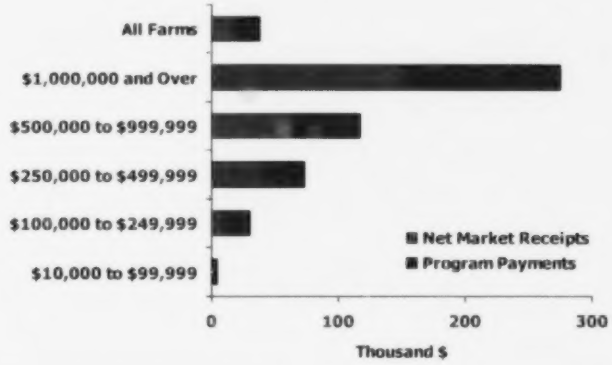
Source: Statistics Canada, 2006 Census of Agriculture.

Average net operating income varies by size of farm

- **Average net operating income is expected to be $37,863 in 2009.**

  Average net operating income varies from $1,383 for farms with gross revenues of $10,000 to $99,999, to $274,868 for million-dollar and over operations.

Chart C4.16
Average Net Operating Income by Revenue Class
2009*



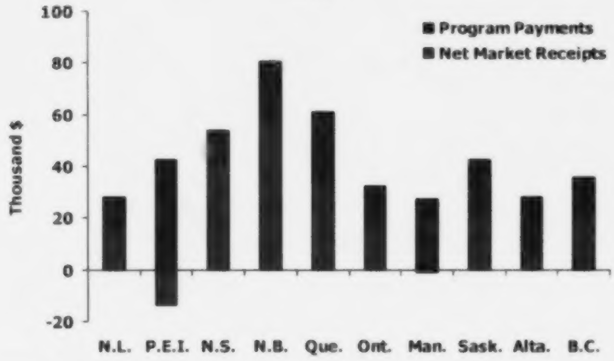
Source: Statistics Canada and AAFC calculations.
Note: *2009 figures are forecasts.

Average net operating income varies significantly by province and farm type

- **Average net operating income differs significantly by province, from $26,259 in Manitoba to $80,616 in New Brunswick**

  New Brunswick and Quebec are expected to report the highest average net operating income, largely due to the strength of the horticulture and supply-managed sectors.

Chart C4.17
Average Net Operating Income by Province
2009*

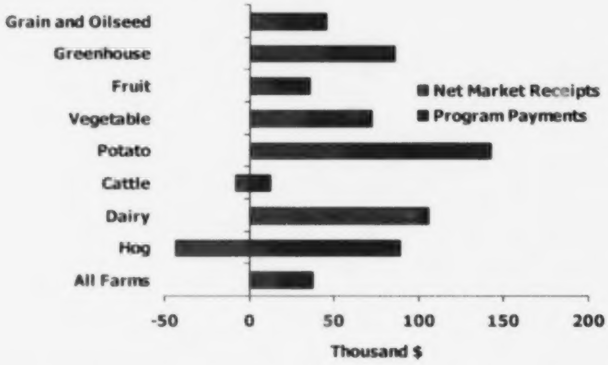


Source: Statistics Canada and AAFC calculations.
Note: *2009 figures are forecasts.

- **On average, potato and dairy farms will have the highest average net operating income among farms in 2009.**

  Grain and oilseed prices in 2009 are down from their record levels in 2008. This will lead to lower returns for grain and oilseed farms, but lower feed costs for cattle and hog farms.

Chart C4.18
Average Net Operating Income by Farm Type
2009*

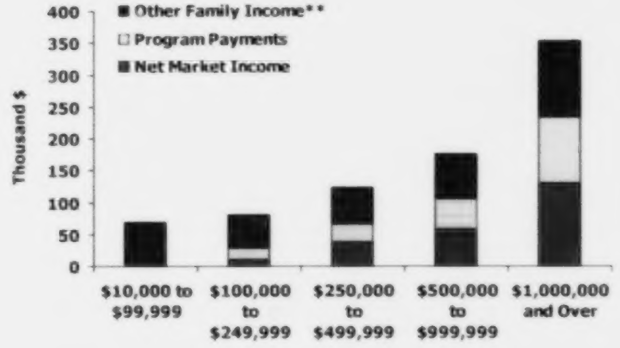


Source: Statistics Canada and AAFC calculations.
Note: *2009 figures are forecasts.

Other family income accounts for a significant share of farm family income, particularly for smaller farms

- **For smaller farms, income from other sources along with program payments are enough to offset negative and low net market income.**

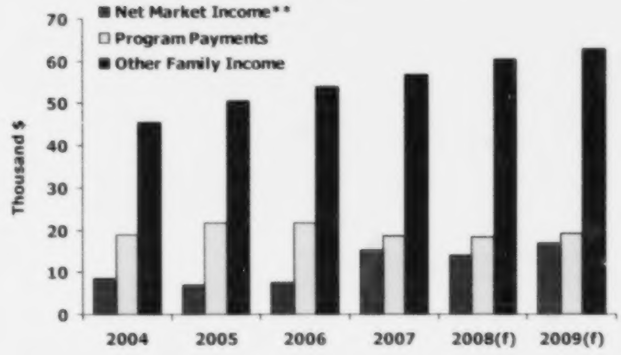
Chart C4.19
Average Income of Farm Families by Source of Income
2009*



Source: Statistics Canada and AAFC calculations.
Notes: * 2009 figures are forecasts.
Net market income does not include the capital cost allowance.
Farm wages paid to family members are treated as an expense to the farm operation; they are also recorded as income to the family by including them in salary & wage income under other family income.
Program premiums are treated as an expense to the farm operation, and are not netted out of program payments.
** Other family income is based on Farm Financial Survey data and is averaged over all farms.

- **Although the proportion of family income from the farm is relatively constant over time, the composition of this income has changed.** From 2004 to 2009, a greater share of family income came from the market and a decreasing share came from program payments.

Chart C4.20
Average Income of Farm Families by Source of Income
2004-2009*



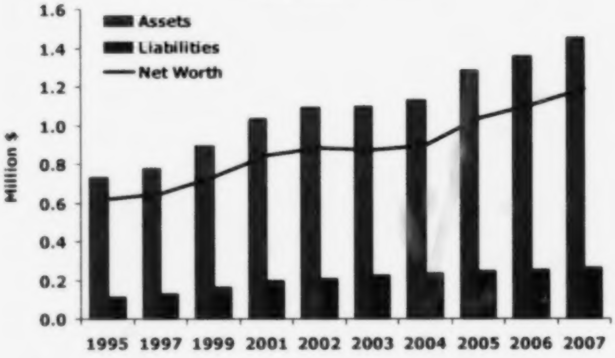
Source: Statistics Canada and AAFC calculations.
Note: * 2008 and 2009 figures are forecasts.
Net market income does not include capital cost allowance.
Farm wages paid to family members are treated as an expense to the farm operation; they are also recorded as income to the family by including them in salary & wage income under other family income.
Program premiums are treated as an expense to the farm operation, and are not netted out of program payments.
** Other family income is based on Farm Financial Survey data and is averaged over all farms.

The financial situation of farms takes into account both income and net worth measures

- **The net financial position of farms may be measured by average net worth.**

In Canada, average farm net worth continued to increase over the last few years after a slight decline in 2003. In 2007, average net worth was $1,189,893, up 8% from 2006.

Chart C4.21
Average Total Net Worth by Farm Type
1995-2007

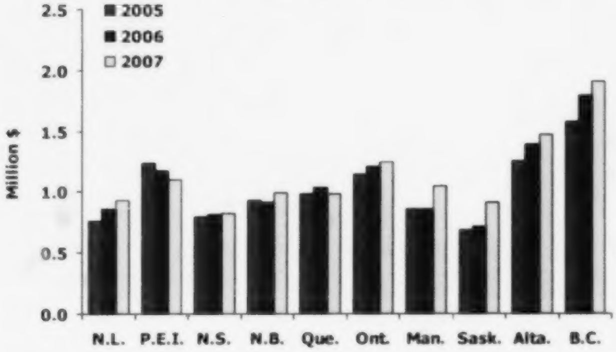


Source: Statistics Canada Farm Financial Survey, various years and AAFC calculations.
Note: Includes farms with $10,000 or more in gross revenues.

- **Average net worth increased in all provinces in 2007 compared to 2006, with the exception of Prince Edward Island and Quebec, where average net worth declined slightly.**

Average net worth increased faster in Saskatchewan and Manitoba than in other provinces, partly due to the increasing land values in western Canada associated with rising grain and oilseed prices.

Chart C4.22
Average Farm Total Net Worth by Province
2005-2007



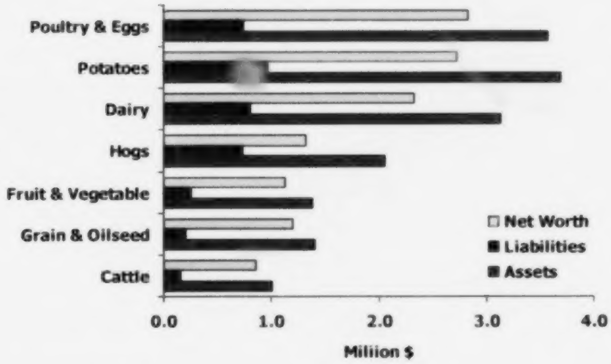
Source: Statistics Canada Farm Financial Survey, various years and AAFC calculations.
Note: Includes farms with $10,000 or more in gross revenues.

Farm net worth also varies by farm type

- **Poultry and egg farms, potato, dairy and hog farms reported the highest net worth in 2007, ranging from $1.3 to $2.8 million.**

  The Canadian average for all farms was $1.2 million in 2007. Cattle farms had the lowest assets, liabilities and net worth, on average.

Chart C4.23
Average Assets, Liabilities and Net Worth by Farm Type
2007

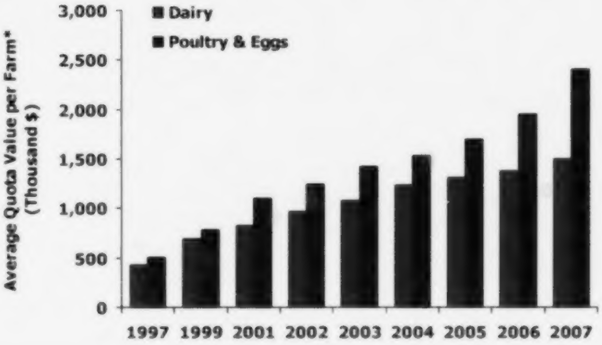


Source: Statistics Canada Farm Financial Survey, various years and AAFC calculations.
Note: Includes farms with $10,000 or more in gross revenues.

- **Quota values in the supply-managed industries have grown significantly over the last few years.**

  In 2007, the average dairy farm had around $1.5 million worth of quota, and the average poultry farm around $1.9 million, accounting for 47% and 52% of total farm assets, respectively. This was caused by an increase in the value of quota per animal and an increase in the number of animals per farm.

Chart C4.24
Average Quota Value of Supply-Managed Farms
1997-2007



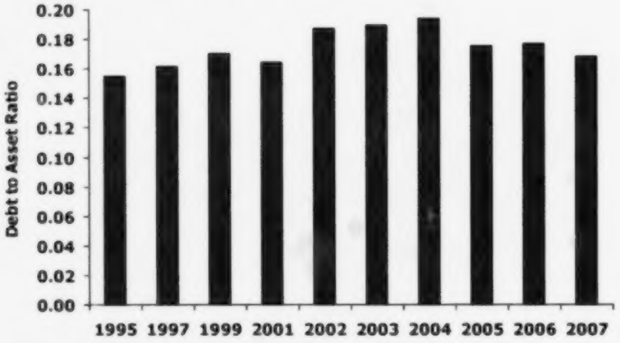
Source: Statistics Canada Farm Financial Survey, various years and AAFC calculations.
Note: Includes farms with $10,000 or more in gross revenues.

The overall financial health of a farm business depends on both cash flow and debt management

- **The debt to asset ratio measures a farm's financial risk by determining how much of a farm's assets have been financed by debt.**

Overall, the average debt to asset ratio for all farms has declined since 2005, reflecting an improvement in financial conditions.

Chart C4.25
Debt to Asset Ratios* for All Farms
1995-2007



Source: Statistics Canada Farm Financial Survey, various years and AAFC calculations.
Note: Includes farms with $10,000 or more in gross revenues.
*Average per farm.

- **The financial position of farms is determined by cash flow and equity levels.**

The vast majority of farms with revenues of $250,000 and over were in a strong financial position at the end of 2007.

Almost 11% were in a tight financial position, while 9% were in a moderate financial position.

Chart C4.26
Financial Position of All Farms
with Revenues of $250,000 and Over
2007

	EQUITY CLASSES IN PERCENTAGE			
CASH FLOW CATEGORIES	Less than 50%	50% to 75%	Greater than 75%	All Net Worth
Less than $0	**4.7%**	**6.1%**	**6.0%**	16.8%
$0 to $20,000	**1.0%**	**1.9%**	**3.5%**	6.4%
$20,000 and over	**7.8%**	**19.9%**	**49.2%**	76.9%
All Cash Flow	13.5%	27.9%	58.6%	100.0%

Tight financial position.
Moderate financial position.
Strong financial position.

Source: Statistics Canada Farm Financial Survey 2008 and AAFC calculations.

Rates of return in farming also vary by farm type

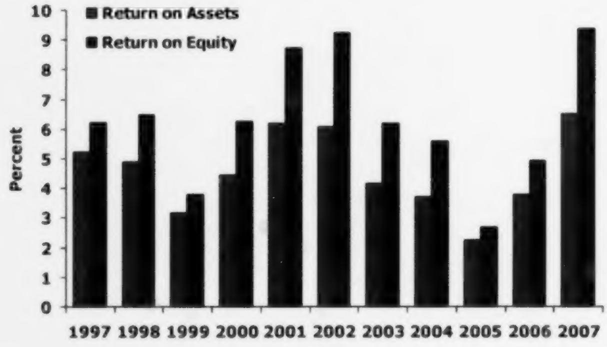
- **In Canada, the grain and oilseed sector had significant fluctuations on returns to both equity and assets between 1997 and 2007.**

  The return on equity averaged 6.3% over the 11-year period compared to 6.7% for all farms in Canada.

  The return on assets averaged 4.6% over the 11-year period compared to 4.9% for all farms in Canada.

  The rates of return for grain and oilseed farms were the highest in 2007.

Chart C4.27
Rates of Return for Grain and Oilseed Farms
1997-2007



Source: Statistics Canada, Corporate Taxfiler Database, various years.

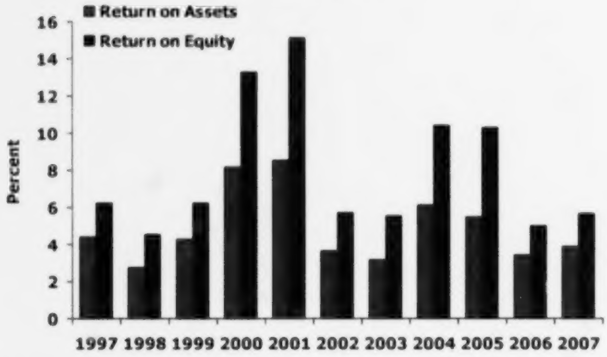
- **The hog sector also had significant fluctuations in returns.**

  In 2007, the rates of return for incorporated hog farms increased slightly compared to 2006.

  The return on equity in the hog sector averaged 8.0% over the 11-year period, compared to 6.7% for all farms in Canada.

  The return on assets in the hog sector averaged 4.9% over the 11-year period, comparable to all farms in Canada.

Chart C4.28
Rates of Return for Hog Farms
1997-2007



Source: Statistics Canada, Corporate Taxfiler Database, various years.

SECTION C5

Agricultural Input and Service Suppliers

Input and service suppliers, ranging from multinational firms and commodity brokers to small local businesses, play a major role in the Canadian agriculture and agri-food system. Higher fuel prices and increasing demand have contributed to rising input prices globally with significant implications for operating expenses. In order to reduce operating expenses many producers purchase inputs through co-operatives, purchase inputs during off-season periods, or adopt energy-efficient practices.

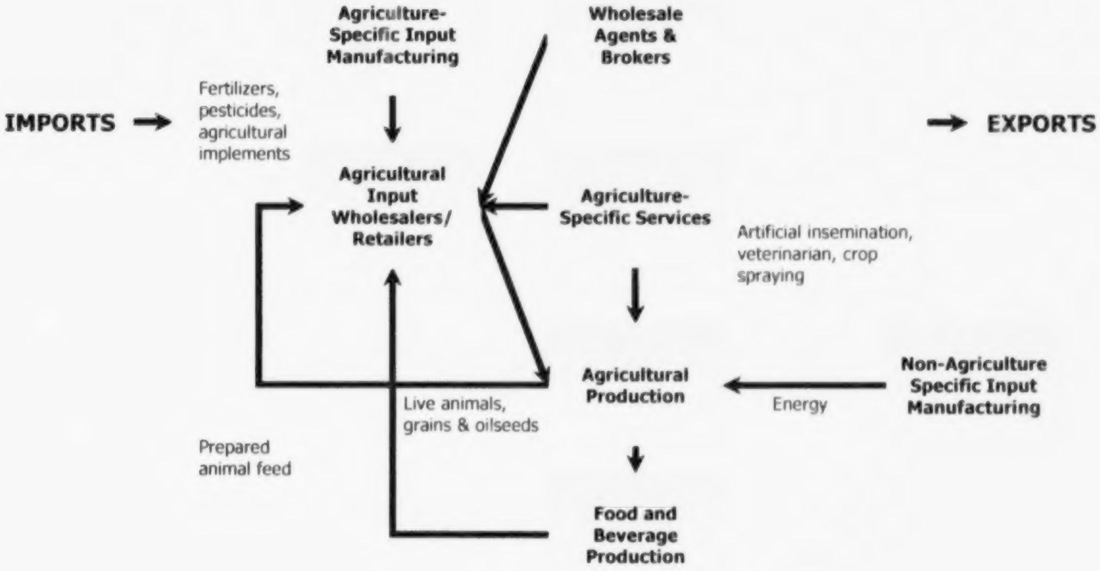
Input suppliers are a whole chain unto themselves

- **Agriculture-specific input and service suppliers constitute a whole value chain within the agriculture and agri-food system. They include input manufacturers, service providers, and retailers/wholesalers.**

  They supply and support primary agriculture, and at the same time, act as buyers of products from downstream industries (e.g., prepared animal feed from grain and oilseed mills or feeder calves from cow-calf operations).

  Agriculture-specific input and service suppliers are heterogeneous. They range from multinational firms producing agricultural machinery and implements to small local businesses selling feed and pesticides, and from international commodity brokers to the next-door neighbour doing custom work.

Chart C5.1
The Value Chain of Agriculture Specific Input and Service Suppliers


IMPORTS
Fertilizers, pesticides, agricultural implements
Agriculture-Specific Input Manufacturing
Wholesale Agents & Brokers
EXPORTS
Agricultural Input Wholesalers/ Retailers
Agriculture-Specific Services
Artificial insemination, veterinarian, crop spraying
Agricultural Production
Non-Agriculture Specific Input Manufacturing
Energy
Live animals, grains & oilseeds
Prepared animal feed
Food and Beverage Production

Source: AAFC.

Globally, input prices have been rising steadily, putting upward pressure on farm expenses

- **In 2008, farm operating expenses and depreciation totalled $42.7 billion.**

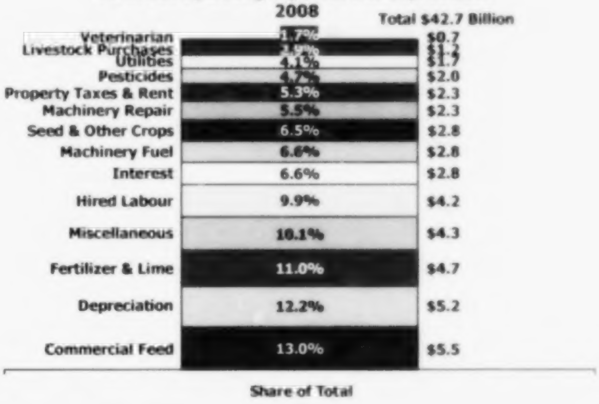
Agriculture producers spent $37.5 billion on operating expenses after rebates.

Agriculture producers also incurred another $5.2 billion in depreciation charges.

Commercial feed was the largest individual expense for agriculture producers at $5.5 billion in 2008, followed by depreciation (at $5.2 billion) and fertilizer and miscellaneous expenses at $4.7 billion and $4.3 billion, respectively.

Higher feed costs contributed to lower incomes for livestock producers in 2008.

Chart C5.2
Farm Net Operating Expenses and Depreciation
2008

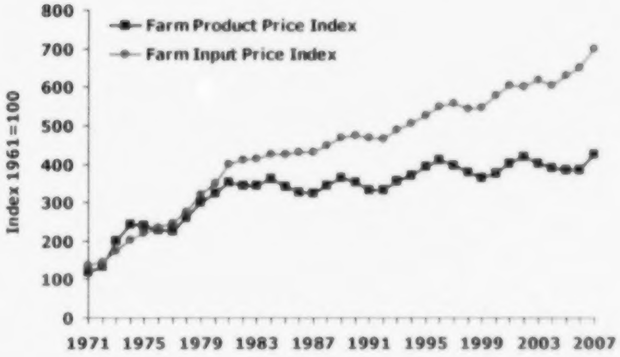


Source: Statistics Canada.

- **In Canada, prices of primary agriculture inputs have risen at a considerably faster pace than output prices since the early 1980s.**

Farm input prices such as fertilizer and machinery fuel have risen with crude oil and commodity prices. Farm product prices have increased only moderately since 1981.

Chart C5.3
Farm Input Prices and Farm Product Prices
1971-2007



Source: Statistics Canada.

Globally, input prices have been rising steadily, putting upward pressure on farm expenses

- **In 2008, farm operating expenses and depreciation totalled $42.7 billion.**

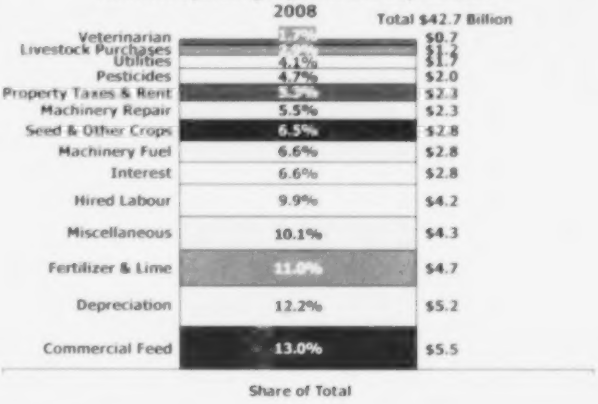
  Agriculture producers spent $37.5 billion on operating expenses after rebates.

  Agriculture producers also incurred another $5.2 billion in depreciation charges.

  Commercial feed was the largest individual expense for agriculture producers at $5.5 billion in 2008, followed by depreciation (at $5.2 billion) and fertilizer and miscellaneous expenses at $4.7 billion and $4.3 billion, respectively.

  Higher feed costs contributed to lower incomes for livestock producers in 2008.

Chart C5.2
Farm Net Operating Expenses and Depreciation
2008

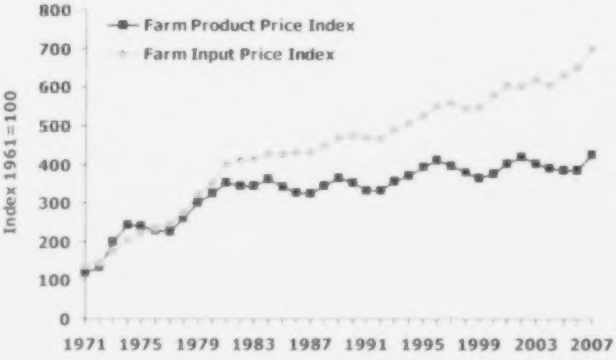


Source: Statistics Canada

- **In Canada, prices of primary agriculture inputs have risen at a considerably faster pace than output prices since the early 1980s.**

  Farm input prices such as fertilizer and machinery fuel have risen with crude oil and commodity prices. Farm product prices have increased only moderately since 1981.

Chart C5.3
Farm Input Prices and Farm Product Prices
1971-2007



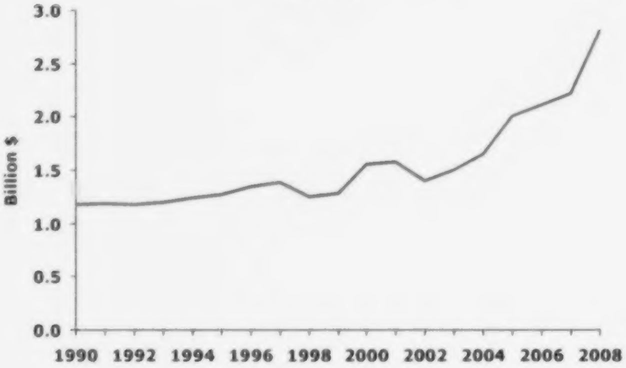
Source: Statistics Canada

Higher energy prices in 2008 contributed to higher costs for machinery fuel and fertilizer

- **Fuel prices are a particularly important contributor to the higher costs of production.**

  Farm expenses on machinery fuel have risen significantly since 2004 due to rising global energy prices, and accounted for 7% of operating expenses in 2008.

Chart C5.4
Farm Expenses on Machinery Fuel
1990-2008



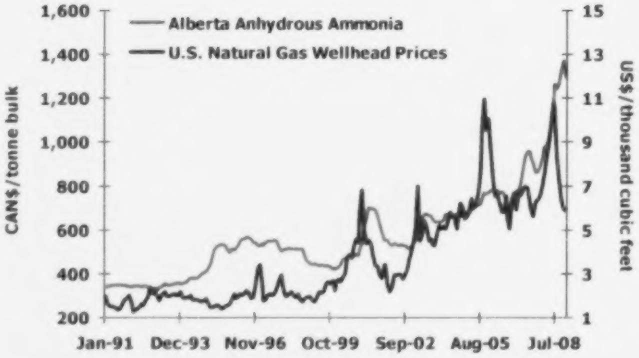
Source: Statistics Canada.

- **Although other factors have had a significant impact on fertilizer prices in recent years, fertilizer prices are in large part determined by demand, supply and their production costs.**

  Nitrogen fertilizer prices generally follow natural gas prices, so higher natural gas prices directly cause an increase in nitrogen fertilizer prices.

  Nevertheless, in 2008 the price of fertilizer rose substantially due to increased demand from crop producers facing sharply higher crop prices and supply constraints.

Chart C5.5
Anhydrous Ammonia & Natural Gas Prices
1991-2008



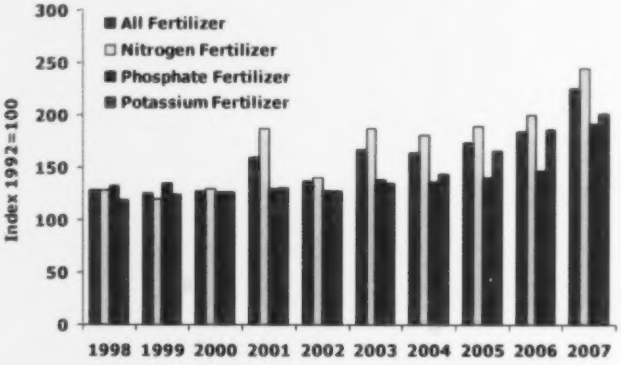
Source: Alberta Agricultural Input Monitoring System (AIMS) and the United States Energy Information Administration.

Fertilizer prices have risen steadily over the last decade

- **From 1998-2007 the Farm Input Price Index (FIPI) for all fertilizer prices increased by 75%.**

  Nitrogen fertilizer prices increased the most at 90%, potassium fertilizer increased by 70% and phosphate fertilizer by 44%.

Chart C5.6
Farm Input Price Index (FIPI) for Fertilizer
1998-2007



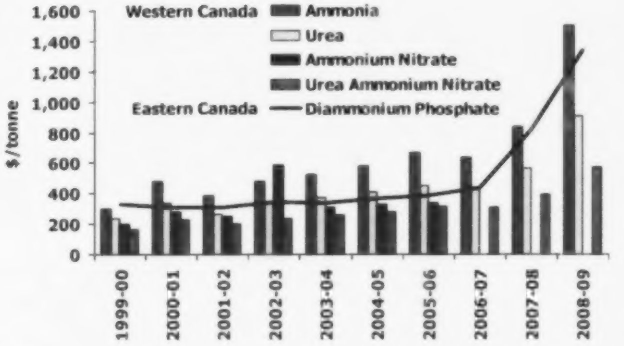
Source: Statistics Canada.

Canadian fertilizer production and pricing markets are dominated by western Canada

- **Since 2006, fertilizer prices have increased significantly, particularly in western Canada, for ammonia, urea, and urea ammonium nitrate between the end of the 2006-07 and 2008-09 growing seasons.**

  Over this time, prices for ammonia and urea doubled and ammonium nitrate prices increased by almost 90%. In eastern Canada diammonium phosphate prices tripled over the same period.

Chart C5.7
Fertilizer Prices by Region
1999-2009

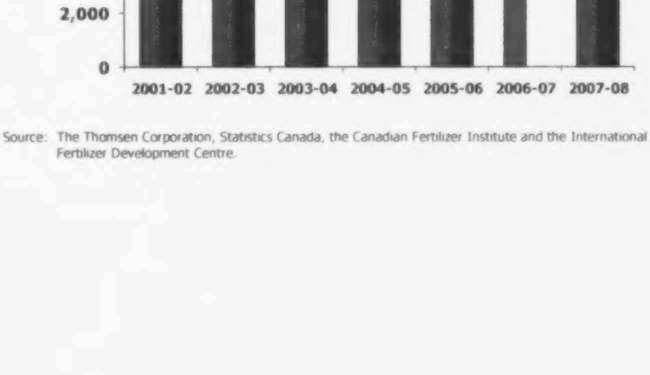


Source: The Thomsen Corporation, Statistics Canada, the Canadian Fertilizer Institute and the International Fertilizer Development Centre.

- **The vast majority of fertilizer production is situated in western Canada. Potash and nitrogen are the two main fertilizers produced in western Canada.**

  From 2001-2008, production of potash increased by 32% and nitrogen by 13%. Eastern Canada also produces nitrogen and potash. However, the amount currently produced—346,000 tonnes of nitrogen and 267,000 tonnes of potash—is 10 and 39 times less than what is produced in western Canada.

Chart C5.8
Fertilizer Production in Western Canada
2001-2009



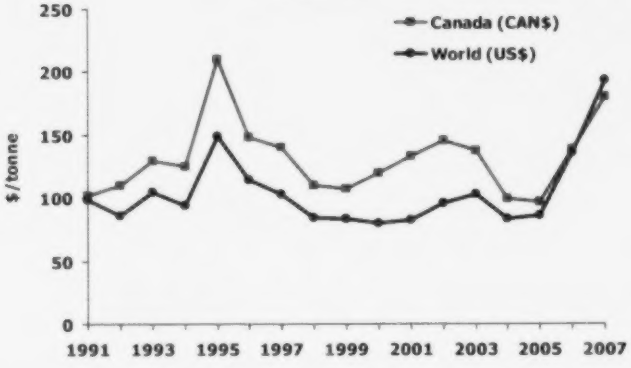
Source: The Thomsen Corporation, Statistics Canada, the Canadian Fertilizer Institute and the International Fertilizer Development Centre.

Higher crop prices in 2008 led to higher feed costs for livestock producers

- **In 2008, world feed grain prices increased significantly for the second consecutive year, due mainly to lower stocks, stronger demand and a weaker U.S. dollar. In Canada, feed grain prices also increased significantly but less than in the world market, as a result of the stronger Canadian dollar.**

  Despite the decline in livestock prices, feed grain prices remained high in 2008.

Chart C5.9
Canadian and World Feed Grain Prices
1991-2008

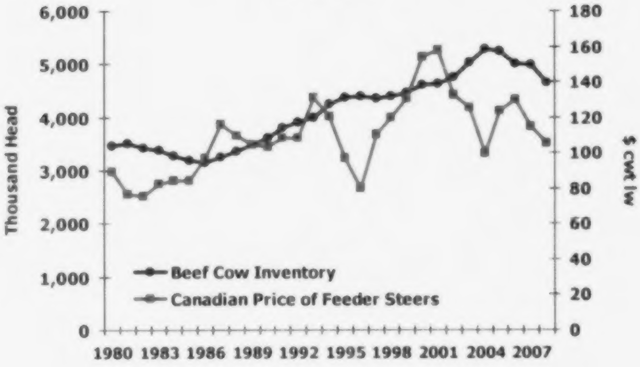


Source: University of Guelph, Ridgetown College and Chicago Board of Trade.

- **Beef cow inventories are influenced by the price of feeder cattle. The difficulties involved in selling cows at reasonable prices between 2003 and 2005 prompted producers to keep a large number of cows.**

  In 2005, resumption of trade in young cattle including beef heifers began to ease the inventory build-up. Lower prices of feeder cattle also dampened the strong herd growth seen during the past 18 years. The drought and the world economic recession in 2009 will extend the period of herd liquidation.

Chart C5.10
Canadian Feeder Calf Prices
1991-2008



Source: Statistics Canada, Canfax and AAFC calculations.

SECTION C6

Natural Resource Use and Environmental Impacts

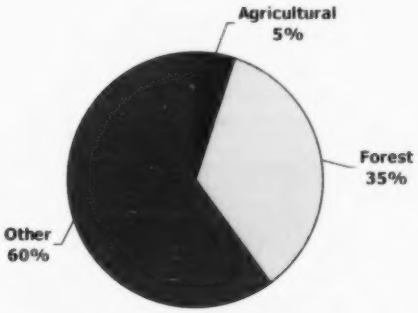
Agricultural production depends on the availability and quality of land and water. Cropping choices, farming practices, and input use patterns will vary in response to market conditions, as well as to various environmental factors. Environmental effects of agriculture will vary in similar ways, partly because of variations in crop choice and farming practices and partly because of regionally-specific growing conditions (e.g., soils, climate, etc.).

Canada's land suitable for agricultural production is relatively small compared to total land mass, and has been under increasing pressure from urban expansion

- **In 2001, only 5% of Canada's total land area was used for agriculture.**

This represents a total area of arable land and permanent cropland of about 52 million hectares, placing Canada second in the world for the availability of arable land per person. This favorable situation enables the sector to be a large net exporter of agricultural products.

Chart C6.1
Share of Agricultural Land and Land in Forest to Total Land
2001



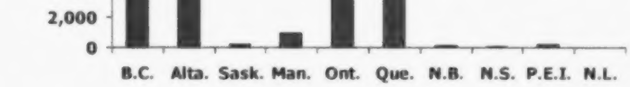
Source: Natural Resources Canada, Canada's Forest Inventory.

- **Provinces with large cities display the highest rates of farmland conversion to urban use.**

With an average of more than 18 thousand hectares of farmland lost to city expansion per year, Ontario is where agricultural land is under the most pressure from urban development.

British Columbia and Quebec also show a net loss of agricultural land, while in Alberta farmland conversion to urban use is offset by gains made at the farmland-forest fringe.

Chart C6.2
Annual Average Rate of Conversion of Farmland to Urban Use by Province
1966-2001 Avg.



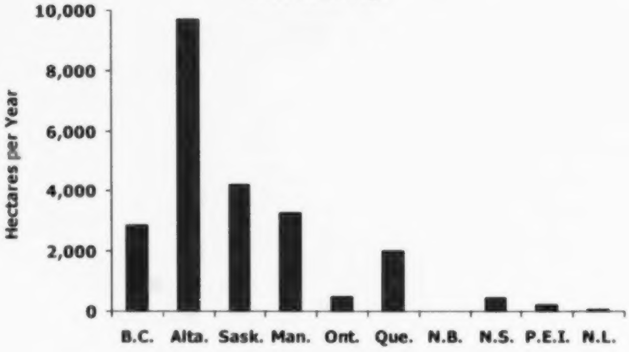
Source: Statistics Canada, Environment Canada and AAFC calculations.

Agricultural land loss due to urbanization is being offset by clearing forested areas, which in turn has some impact on wildlife habitat

- **In every province except New Brunswick, forests are being cleared for agricultural and other uses.**

  The most intensive land use shifts from forest to farmland are occurring in the Prairie Provinces, British Columbia and Quebec. In all other provinces, forest to cropland conversion is more modest.

Chart C6.3
Annual Average Rate of Conversion Between Forest and Farmland by Province
1966-2001 Avg.

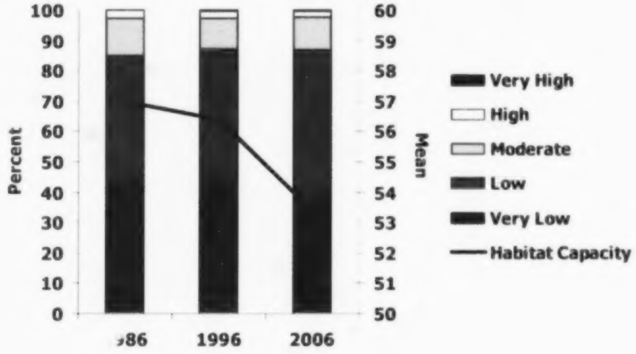


Source: Statistics Canada, Environment Canada and AAFC calculations.

- **Nationally, wildlife habitat capacity on farmland declined from 1986 to 2006.**

  The loss of natural and semi-natural land cover and the intensification of agricultural operations resulted in a decline in mean habitat capacity by about 3% as land rated as having low habitat capacity has increased slightly.

Chart C6.4
Share of Agricultural Land by Habitat Capacity Category
1986, 1996 and 2006



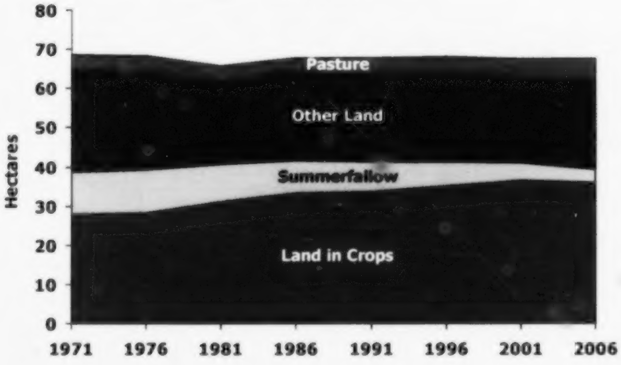
Source: S.K. Javorek and M.C. Grant, (forthcoming) 2010.

At the same time, technological change and better land management have supported an increase of land in crops and a reduction in the area under summerfallow

- **Use of summerfallow has declined as farmers make more intensive use of their land with longer rotations in seeded crops and adopt environmentally-friendly management practices such as no-till and conservation tillage.**

  Summerfallow area decreased by 25% between 2001 and 2006. For example, Saskatchewan had 9% of its total farmland in summerfallow in 2006, down from 12% in 2001. Summerfallow is used mostly in the Prairies to restore the productive capacity of soils by accumulating moisture and nutrients.

Chart C6.5
Canadian Agricultural Land Use
1971-2006

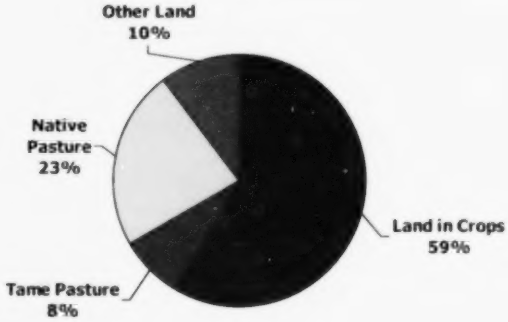


Source: Statistics Canada, Census of Agriculture, 2006.

- **In 2006, about 60% of Canada's agricultural land was used for the production of a highly diversified mix of crops.**

  Tame and native pasture represented another 30% of total agricultural land while woodlands, wetlands and Christmas tree areas accounted for other land use.

Chart C6.6
Canadian Agricultural Land Use
2006



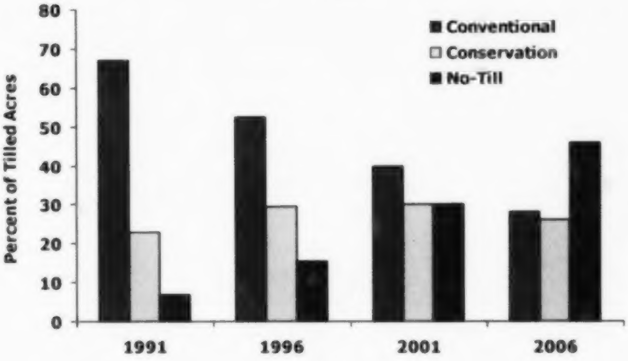
Source: Statistics Canada, Census of Agriculture, 2006.

More farmers are adopting environmentally-friendly management practices, which are both economically beneficial and agronomically sound

- **No-till practices are becoming very popular as they reduce input costs and protect soil from erosion by wind and water.**

No-till use increased by 52% between 2001 and 2006, while use of conventional tillage decreased by 32%. In 2006, about 70% of cropland in Canada was cultivated using no-till or conservation tillage, mainly in the Prairies.

Chart C6.7
Tillage Practices
1991-2006

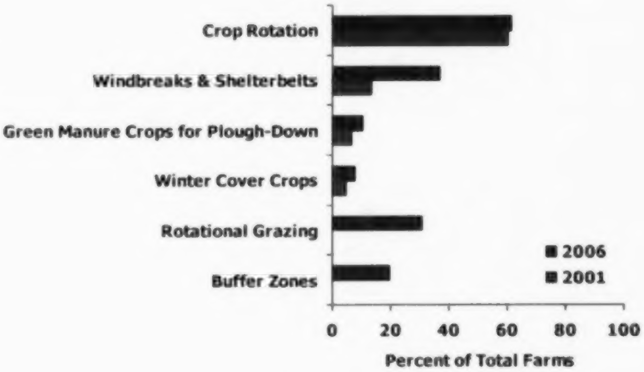


Source: Statistics Canada, Census of Agriculture, various years.

- **More farmers reported using soil conservation practices in 2006 than in 2001.**

In addition to no-till and conservation till, crop rotation remains the most common soil conservation practice, followed by the addition of treed windbreaks and the use of rotational grazing.

Chart C6.8
Soil Conservation Practices
2001-2006

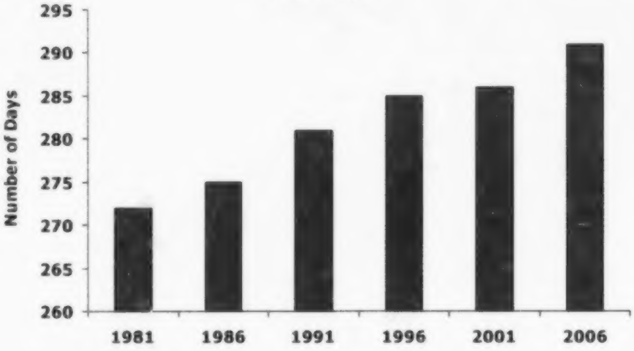


Source: Statistics Canada, Census of Agriculture, 2001 and 2006.

Adopting environmentally-friendly practices, such as no-till, maintains soil cover and helps to reduce the risk of erosion, as well as improving water infiltration and soil organic matter content

- **The net result of the adoption of reduced tillage, the decreased use of summerfallow and shifts in crops planted is that average levels of soil cover in Canada have increased by 7% between 1981 and 2006.**

Chart C6.9
Area-Weighted Mean Annual Soil Cover Days
1981-2006

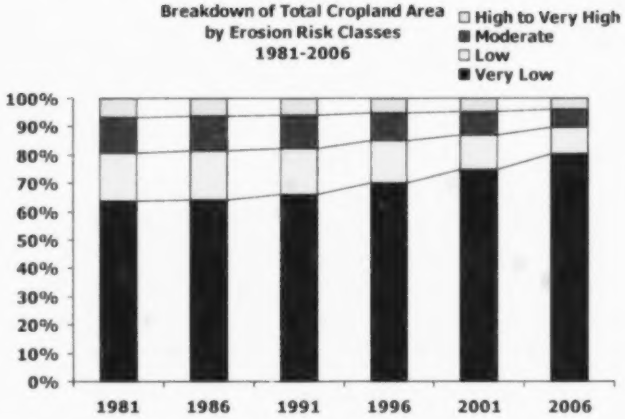


Source: T. Huffman and D. Coote, (forthcoming) 2010.

- **The result of adopting environmentally-friendly management practices is that the combined risk of erosion from wind, water, and tillage has decreased substantially, especially over the last 15 years.**

  Currently, only about 10% of all cropland area is subject to moderate to very high risk of erosion. The reduction in erosion risk is the result of a general decrease in tillage intensity, summerfallow use, and area of annual crops on land prone to erosion.

Chart C6.10
Breakdown of Total Cropland Area by Erosion Risk Classes
1981-2006



Source: B.G. McConkey, D.A. Lobb, S. Li and J.M.W. Black, (forthcoming) 2009.

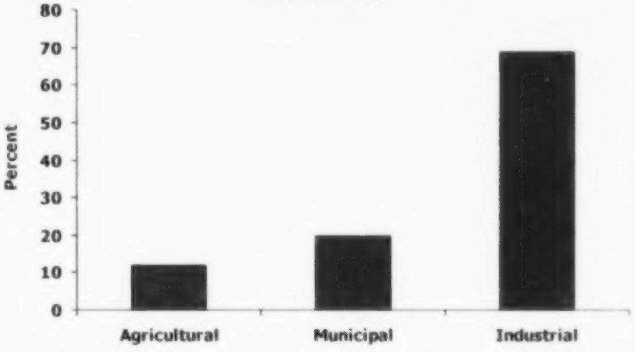
Soil cover refers to vegetation, including crops, and crop residues on the surface of the soil.

In Canada, agriculture uses a relatively small share of the country's abundant renewable water resources, mostly for irrigation and livestock purposes

- **Relative to other uses, agriculture accounts for only a small share of total water withdrawal in Canada. Hydro electricity withdraws the greatest amount.**

However, a very large share of the water withdrawn by the agriculture sector is actually consumed for irrigation and consequently not returned to a natural water body and is not available for other uses.

Chart C6.11
Agricultural Water Withdrawal Relative to Water Uses for Other Sectors in Canada
1998-2002 Avg.



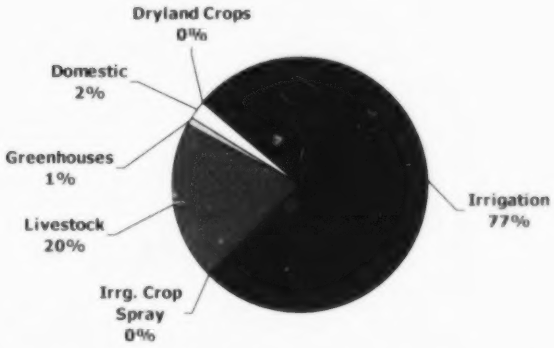
Source: Calculated from AQUASTAT database of the Food and Agriculture Organization (FAO) of the United Nations.

- **In 2006, total water use by the Canadian agriculture sector amounted to approximately 4.6 billion cubic metres, an increase of 25% over 2001.**

Water to irrigate crops is by far the most important use, followed by livestock use. These two activities account for almost all of the agriculture sector's total water use.

Although a small quantity, water used in greenhouses increased by more than 21% between 2001 and 2006 as the area under glass has increased from approximately 18 million square meters to more than 22 millions.

Chart C6.12
Distribution of Total Agricultural Water Use by Type
2006



Source: AAFC calculations using the Canadian Regional Agriculture Water Use Model (CRAWUM).

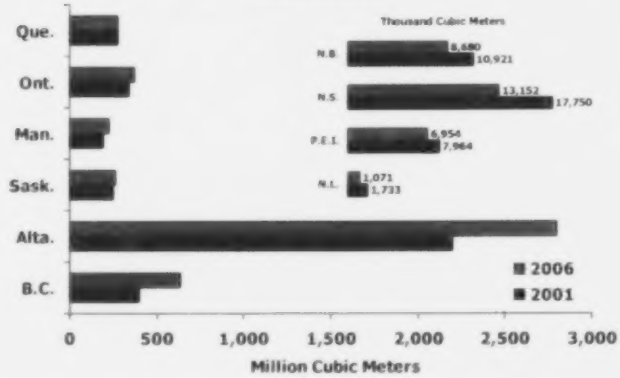
Water use by agriculture is more important in semi-arid areas, where fruits and vegetables are produced, and where livestock is concentrated

- **In 2006, southern Alberta, with its large livestock industry, accounted for 60% of total Canadian agricultural water use, while horticultural crop production made British Columbia the second largest agricultural water user in the country.**

Total agricultural water use decreased in the Atlantic Provinces and Quebec, mostly due to a small decline in livestock production.

Expansion of greenhouses, irrigated areas and livestock production between 2001 and 2006, led to increased water use by the agriculture sector in the western provinces and Ontario.

Chart C6.13
Total Agricultural Water Use by Province
2001 and 2006



Source: AAFC calculations using the Canadian Regional Agriculture Water Use Model (CRAWUM).

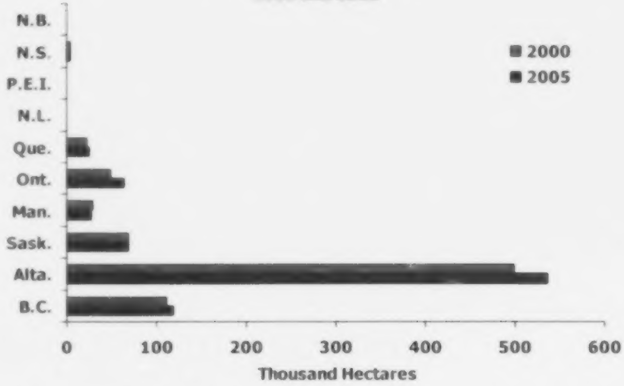
- **In 2005, Canada had about 845 thousand hectares of irrigated cropland, representing a small increase since 2000.**

In many regions, irrigation is not used on a consistent basis, but only when rainfall is insufficient.

Alberta is the province with the largest irrigated area, accounting for 63% of the national total, followed by British Columbia at 14%.

Between 2000 and 2005, a notable increase in irrigated areas occurred in Prince Edward Island, Ontario and Alberta.

Chart C6.14
Irrigated Areas by Province
2000 and 2005



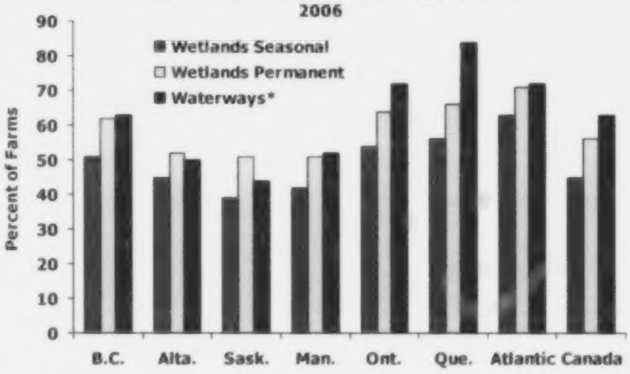
Source: Statistics Canada, Census of Agriculture, 2006.

More farmers are taking significant steps to protect water quality

- **A majority of farmers indicate they are maintaining a riparian buffer around permanent wetlands and waterways on their land.**

  This water protection practice is being increasingly adopted across the country. In 2006 riparian buffer maintenance was slightly more widespread in eastern Canada.

Chart C6.15
Percent of Farms with Wetlands and Waterways that Maintained a Riparian Buffer by Province
2006

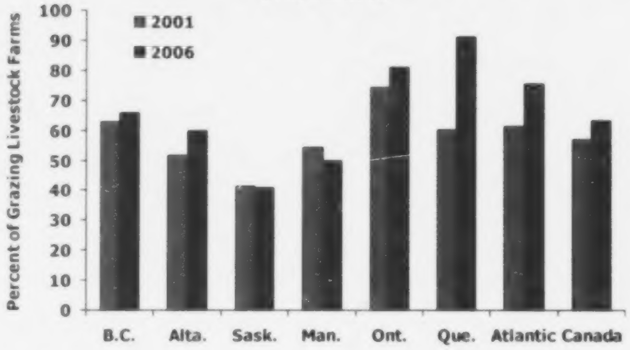


Source: Statistics Canada, Farm Environmental Management Survey, 2006 and AAFC calculations.
Note: *Creeks, ditches, grassed waterways, etc.

- **In general, more farmers have been controlling the access of their livestock to surface water.**

  Between 2001 and 2006 all provinces, with the exception of Saskatchewan and Manitoba, have seen the adoption of restricted access to surface water gain in importance with Quebec, the Atlantic Provinces and Alberta displaying the largest increases.

Chart C6.16
Percent of Grazing Livestock Farms with Controlled Access to Surface Water by Province
2001 and 2006



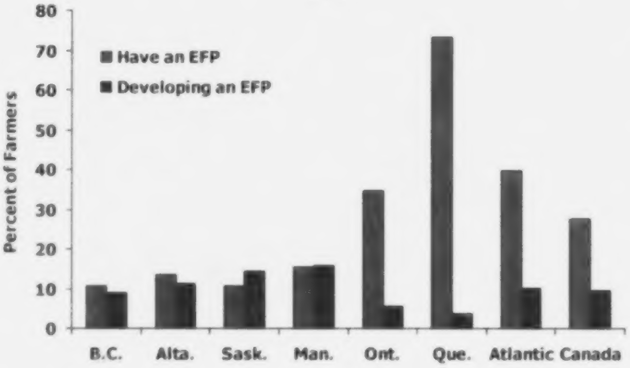
Source: Statistics Canada, Farm Environment Management Surveys, 2001 and 2006 and AAFC calculations.

Farmers are continuing to improve the management of their farms with an eye on the environment

- **As of 2006, over 27% of farms in Canada indicated they had developed a formal written Environmental Farm Plan (EFP) for their operation and another 10% indicated they were developing one.**

  Regional differences in 2006 between western and eastern Canada are a result of earlier program implementation in eastern Canada. EFP programs have been well received by farmers across the country.

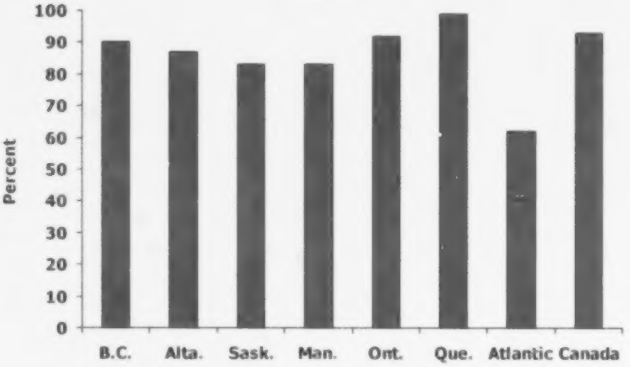
Chart C6.17
Percent of Farmers with an EFP
2006



Source: Statistics Canada, Farm Environment Management Survey, 2006 and AAFC calculations.

- **Over 90% of all farms with an Environmental Farm Plan in 2006 reported that they had adopted at least one Beneficial Management Practice (BMP) from their plan.**

Chart C6.18
Percent of Farms that Adopted a BMP from their EFP
2006



Source: Statistics Canada, Farm Environment Management Survey, 2006 and AAFC calculations.

SECTION D

Government and the Agriculture and Agri-Food Sector

SECTION D1

Government Expenditures

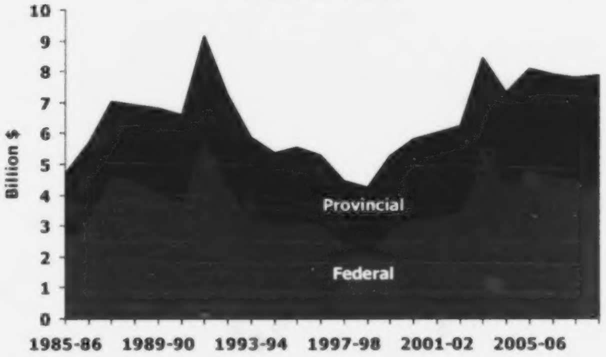
Government expenditures (federal and provincial) in support of the agriculture and agri-food sector increased in 2008-09. As a share of sector GDP, government expenditures were slightly larger than 30%, a decrease from 2007-08. Program payments made up the largest portion of government expenditures to the sector.

Government expenditures in support of the agriculture and agri-food sector have grown over time but have declined as a share of total GDP

- **Federal and provincial governments provide a significant level of support to the agriculture and agri-food sector in Canada, with the federal government contributing 59% of the total expenditures over the whole period.**

Total government expenditures in support of the agriculture and agri-food sector are estimated to be $7.9 billion for the 2008-2009 fiscal year. This is up slightly from the previous year with provincial support increasing, while federal support declined.

Chart D1.1
Government Expenditures in Support of the Agriculture and Agri-Food Sector
1985-86 to 2008-09

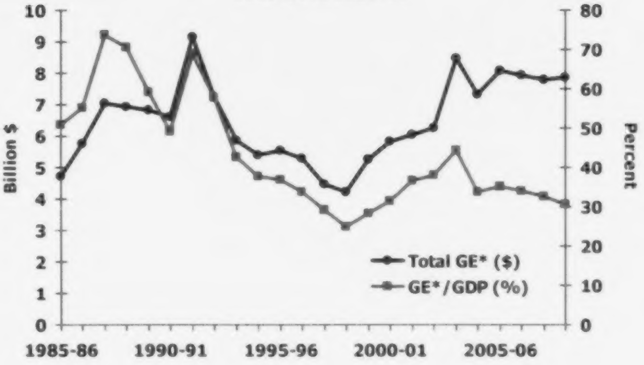


Source: AAFC.
Note: 2008-09 figures are forecasts.

- **At the same time, government expenditures in support of the agriculture and agri-food sector are expected to decline as a share of GDP in 2008-2009.**

During the 1990s, government expenditures in dollar terms, and as a share of agriculture and agri-food GDP, were declining. Since 1999-2000, both indicators increased, but at different rates. Since 2003-2004, government expen-ditures in dollar terms have been fairly stable, but have declined as a share of agriculture GDP.

Chart D1.2
Government Expenditures in Support of the Agriculture and Agri-Food Sector, as a Share of GDP
1985-86 to 2007-08



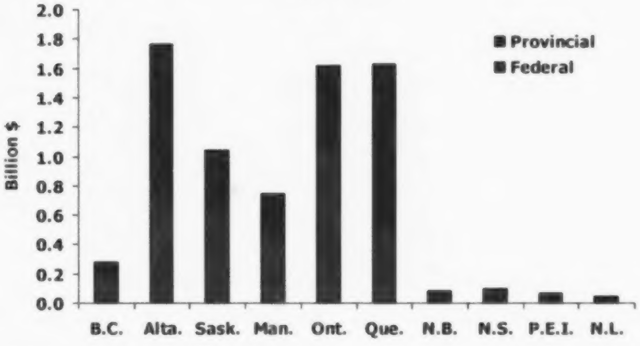
Source: AAFC.
Note: 2008-09 figures are forecasts.
*GE: Government Expenditures.

Government expenditures in support of the agriculture and agri-food sector vary by province

- **The federal government contributes more than half of total support in many of the provinces.**

However, provincial governments in Alberta, Quebec, Nova Scotia, and Newfoundland and Labrador provided a larger share of total support in the 2008-2009 fiscal year.

Chart D1.3
Government Expenditures in Support of the Agriculture and Agri-Food Sector by Province
2008-09

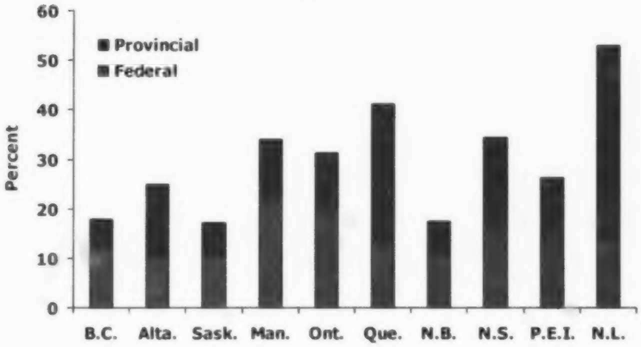


Source: AAFC.
Note: 2008-09 figures are forecasts.

- **In the 2008-2009 fiscal year, government expenditures in support of the agriculture and agri-food sector in Canada were estimated at 30.6% of agriculture and agri-food sector GDP, but varied across provinces.**

As a share of GDP, the agriculture and agri-food sector in Newfoundland and Labrador, Quebec, Nova Scotia and Manitoba received the most government support, while Saskatchewan, New Brunswick and British Columbia received the lowest amount of support.

Chart D1.4
Government Expenditures in the Agriculture and Agri-Food Sector as a Share of Sector GDP by Province
2008-09



Source: AAFC.
Note: 2008-09 figures are forecasts.

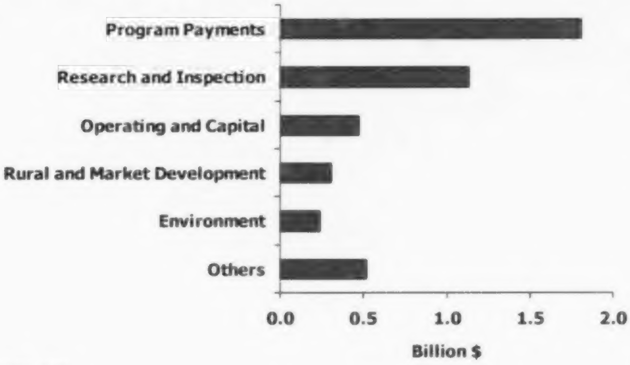
Program payments make up the largest portion of federal and provincial government support

- **In the 2008-2009 fiscal year, program payments were estimated to account for the largest share of federal government expenditures in support of the agriculture and agri-food sector in Canada.**

  Program payments accounted for 40% of total federal government expenditures to the sector in the 2008-2009 fiscal year.

  Research and inspection expenditures are the second most important category of government expenditures, accounting for 25% of the total, followed by others at 12%.

Chart D1.5
Federal Government Expenditures in Support of the Agriculture and Agri-Food Sector by Major Category
2008-09

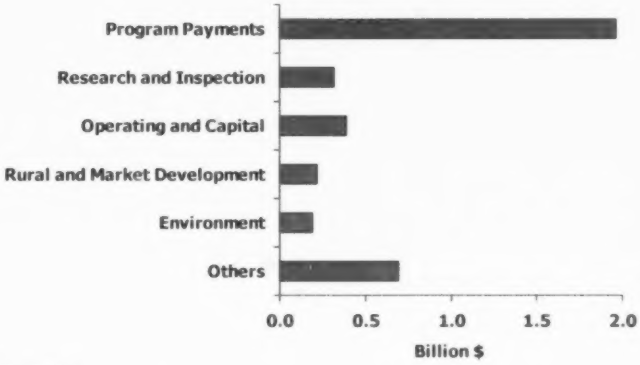


Source: AAFC.
Note: 2008-09 figures are forecasts.

- **At the provincial level, program payments are also the most important government expenditure category in support of the agriculture and agri-food sector.**

  Program payments accounted for 52% of total provincial government expenditures to the sector in the 2008-2009 fiscal year. However, only 8% was spent on research and inspection, compared to 25% at the federal level.

Chart D1.6
Provincial Government Expenditures in Support of the Agriculture and Agri-Food Sector by Major Category
2008-09



Source: AAFC.
Note: 2008-09 figures are forecasts.

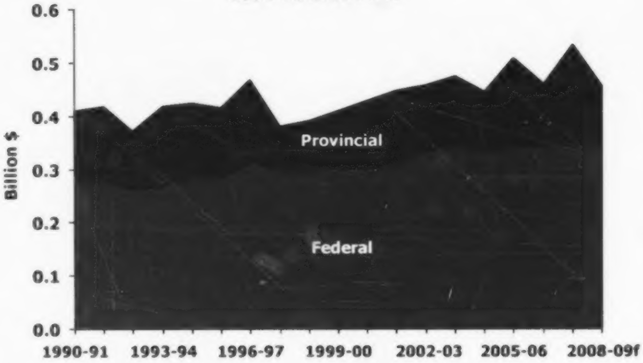
Government expenditures on program payments include transfers made to agricultural producers and the sector, and may include statutory programs such as Agri-Insurance, Agri-Stability, Agri-Invest, Agri-Recovery, Advanced Payments at the federal level, and Provincial Stabilization at the provincial level.

Public research expenditures on agriculture and agri-food are important investments for the future growth of the sector

- **There has been an increasing trend in total publicly-funded research expenditures on the agriculture and agri-food sector over the last decade, with a peak of $533 million in the 2007-2008 fiscal year.**

In Canada, publicly-funded research expenditures on agriculture and agri-food are predominantly provided by the federal government. On average, federal expenditures have accounted for 71% of total public research expenditures over the past ten years (1999-2000 to 2008-2009).

Chart D1.7
Government Research Expenditures
on Agriculture and Agri-Food
1990-91 to 2008-09



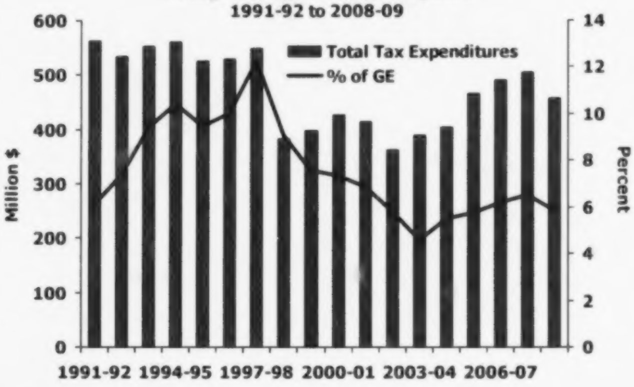
Source: AAFC.
Note: 2008-09 figures are forecasts.

Governments also make use of favourable tax measures to support the agriculture and agri-food sector

- **In addition to tax exemptions and rebates, foregone tax revenue (tax expenditures) is a source of government support to the agriculture and agri-food sector. From 1991-1992 to 2008-2009, tax expenditures averaged 7.2% of total government support.**

In fiscal year 2008-2009, provincial tax exemptions and rebates associated with primary agriculture were estimated at $458 million. Tax expenditures have been increasing since 2003-2004, but are expected to decrease in 2008-2009.

Chart D1.8
Support to Farm Producers
Through Tax Rebates and Exemptions
1991-92 to 2008-09



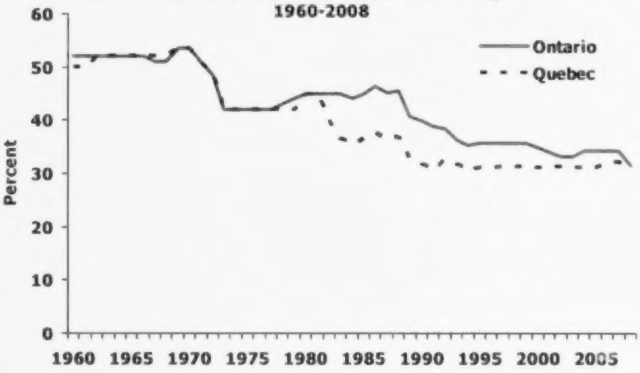
Source: AAFC.
Note: 2008-09 figures are forecasts.

- **Income tax rates for corporations primarily engaged in manufacturing and processing have declined in all provinces since the mid-1980s.**

In Ontario and Quebec, the combined federal and provincial corporate tax rates have decreased from around 45% and 36%, respectively, in the mid-1980s to 32% and 31%, respectively, in 2008.

The reduction between 2007 and 2008 is due to changes in the federal corporate tax system that eliminated the 4% surtax and increased the general tax reduction from 7% to 8.5%.

Chart D1.9
Combined Federal/Provincial Corporate Income Tax Rates
for Manufacturers and Processors, Ontario and Quebec
1960-2008



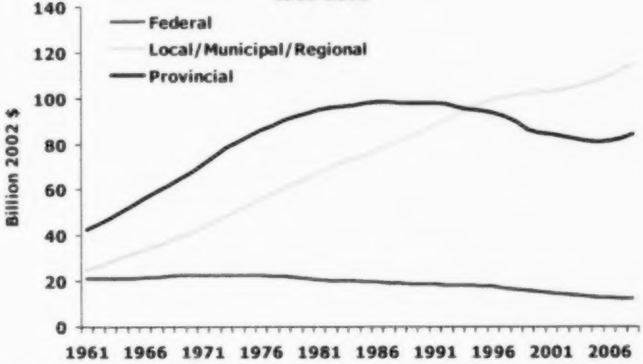
Source: AAFC, Corporate Income Tax Rate Database: Canada and the Provinces 1960-2005 (data revised August 2009).

Public infrastructure investment is important for economic growth and productivity growth in the agriculture and agri-food sector

- **Growth rates in stocks of public engineering infrastructure have differed substantially across levels of government.**

  Engineering infrastructure held by provincial governments increased steadily until 1987, then decreased each year until 2006, when a reversal of this decline began. Local, municipal and regional government engineering infrastructure grew over the entire period, while the stock of engineering infrastructure owned by the federal government decreased every year between 1975 and 2008.

Chart D1.10
Stock of Public Engineering Infrastructure
by Level of Government
1961-2008

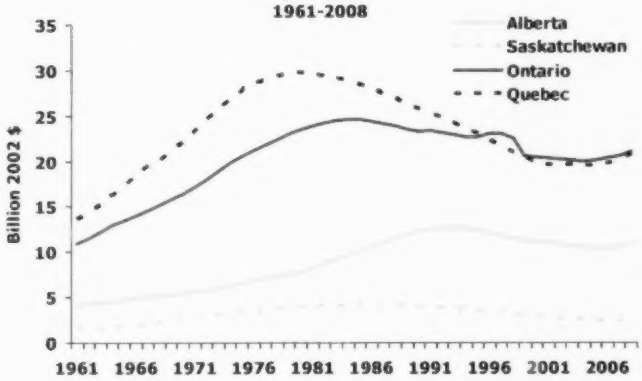


Source: Statistics Canada.
Note: Engineering infrastructure includes transportation infrastructure (highways, roads, streets, bridges, rail track, port facilities etc.) as well as other types such as waterworks, sewers, etc.

- **Rates of growth in stocks of provincial government engineering infrastructure have differed substantially across provinces.** In Ontario, these stocks generally declined from 1990 to 2005, but increased each year from 2006 to 2008.

  Engineering infrastructure stocks held by the Quebec government, while initially much higher than Ontario's, fell by nearly 35% from 1980 to 2004, but showed an upward trend between 2005 and 2008. In Alberta, these stocks followed a similar pattern to Ontario's—peaking in 1993 and declining until 2006. Public engineering infrastructure held by the Saskatchewan government declined each year from 1990 until 2008.

Chart D1.11
Stock of Provincial Government Engineering Infrastructure
by Province
1961-2008



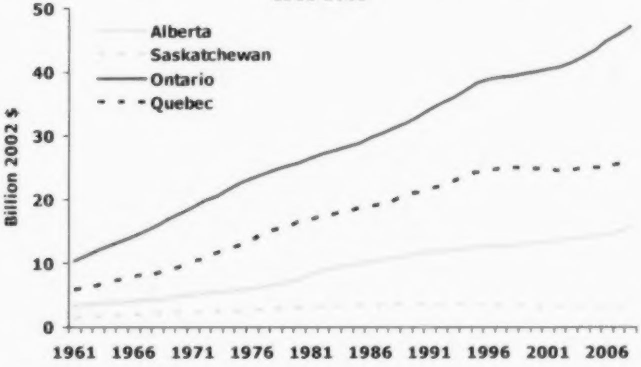
Source: Statistics Canada.
Notes: (1) Alberta, Saskatchewan, Ontario and Quebec accounted for about 80% of Canadian agriculture and food GDP in 2005.
(2) The extent to which these stocks are used by agriculture or food processing cannot be determined with these aggregate data.

Growth in provincial public engineering infrastructure has been driven by investment at the local, municipal and regional levels of government

- **Rates of growth in stocks of local, municipal and regional government engineering infrastructure have differed across provinces.**

  In Ontario, this type of public infrastructure grew consistently between 1961 and 2008, but at a slower rate between 1997 and 2008. In Quebec, stocks of this type grew less rapidly than in Ontario, and showed a more pronounced slowdown between 1997 and 2008. The experience in Alberta was similar to that in Ontario, while in Saskatchewan the level of these stocks decreased from 1994 until 2005, with a slight increase between 2006 and 2008.

Chart D1.12
Stock of Local, Municipal and Regional Government Engineering Infrastructure by Province
1961-2008



Source: Statistics Canada.

Notes: (1) Alberta, Saskatchewan, Ontario and Quebec accounted for about 80% of Canadian agriculture and food GDP in 2005.
(2) The extent to which these stocks are used by agriculture or food processing cannot be determined with these aggregate data.

SECTION D2

Producer Support Estimates (PSE) and Agricultural Policies in Other Countries

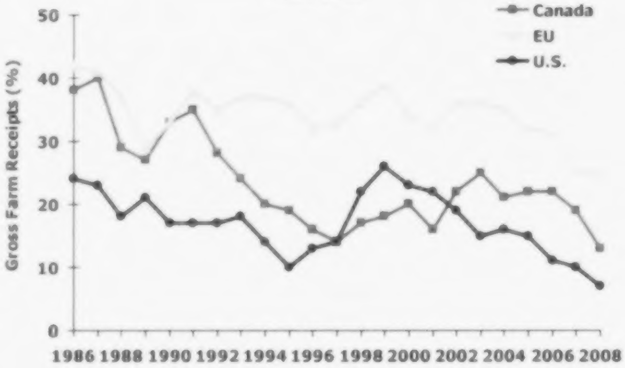
Agricultural policies in Canada and other countries have evolved over time. Changes have been made not only by decreasing the level of support, but also by modifying the type of support. Some countries have made significant reforms to their agricultural policies. The Organisation for Economic Co-operation and Development (OECD) indicators are used to present these policy changes.

In recent years, support to Canadian producers as a percentage of the producer support estimate (PSE) has risen above that of the U.S., but still remains below that of the EU

- **In 2008, the PSE for Canada was 13% of gross farm receipts compared to 25% for the EU and 7% for the U.S.**

In 2008, Canadian support to producers declined as a share of farm receipts just as it did for all OECD countries. This is mainly because of an increase in the value of gross farm receipts due to higher world prices for agricultural commodities, and a decrease in market price support (MPS) and budgetary transfers to producers. Canada still supports its producers more than the U.S. but less than the EU.

Chart D2.1
Percent of PSE in Selected Countries
1986-2008



Source: OECD, Trade and Agriculture Directorate, Producer and Consumer Support Estimates, OECD Database.

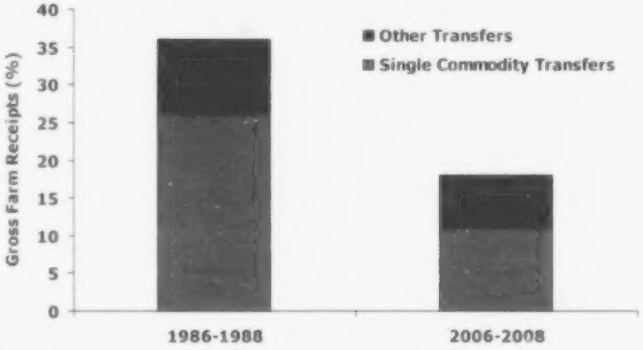
- **Over time, Canada has moved towards more decoupled and less distorting forms of support.**

Support to Canadian agricultural producers dropped from 36% of gross farm receipts in 1986-1988 to 18% in 2006-2008.

The share of single commodity transfers has decreased substantially in favour of more decoupled and less distorting forms of support. In 2006-2008, single commodity transfers represent 61% of the total PSE compared to 71% in 1986-1988.

Nevertheless, single commodity transfers continue to account for more than half of producers' support in Canada, close to the OECD average of 55%.

Chart D2.2
Composition of Support to Producers in Canada
1986-1988 and 2005-2008



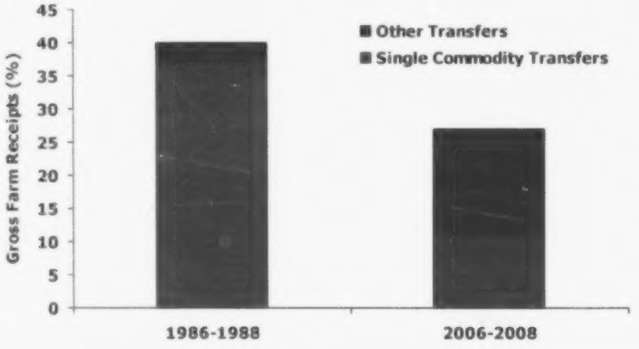
Source: OECD Agriculture Policies in OECD Countries: Monitoring and Evaluation 2009.

Policy directions in other countries have moved towards reduced direct support in favour of more general support

- **Between 1986-1988 and 2006-2008, the EU reduced its support to agricultural producers from 40% to 27% of gross farm receipts.**

In addition, single commodity transfers have decreased substantially in favour of more decoupled and less distorting forms of support. These transfers represent 42% of the total PSE in 2006-2008, compared to 93% in 1986-1988. Single commodity transfers account for less than half of producers' support in the EU, and they will probably continue to decrease as a result of the Health Check[2].

Chart D2.3
Composition of Support to Producers in the EU
1986-1988 and 2006-2008

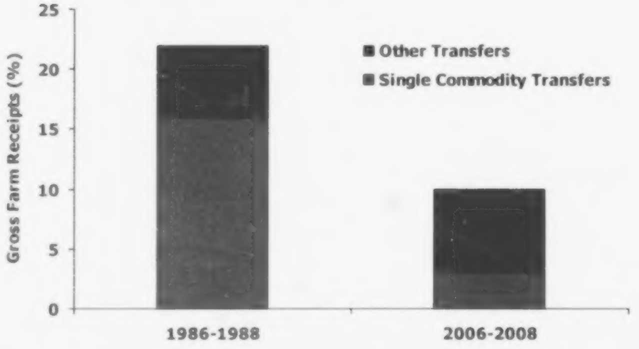


Source: OECD Agriculture Policies in OECD Countries: Monitoring and Evaluation 2009

- **Between 1986-1988 and 2006-2008, U.S. support to agricultural producers decreased from 22% to 10% of gross farm receipts.**

In addition, single commodity transfers have decreased substantially in favour of more decoupled and less distorting forms of support. They represent 29% of the total PSE in 2006-2008, compared to 71% in 1986-1988. Single commodity transfers have decreased from 40% in 2007 to 18% in 2008 because of an important decline in the MPS for milk.

Chart D2.4
Composition of Support to Producers in the U.S.
1986-1988 and 2006-2008



Source: OECD Agriculture Policies in OECD Countries: Monitoring and Evaluation 2009

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[2] *The Health Check of the Common Agricultural Policy (CAP) was initiated in 2007 and the EU reached an agreement on November 2008. The Health Check evaluated the 2003 CAP reforms to determine whether policy instruments were functioning well and to identify changes needed to adapt to new challenges.*

Glossary

Acronyms

AAFC	Agriculture and Agri-Food Canada
AIMS	Alberta Agriculture Input Monitoring System
BICO	Bulk, Intermediate, and Consumer-Oriented
BMP	Beneficial Management Practice
BRIC	Brazil, Russia, India and China
BSE	Bovine Spongiform Encephalopathy
CAP	Common Agricultural Policy
CANSIM	Canadian Socioeconomic Information Management System
CFIA	Canadian Food Inspection Agency
CPG	Consumer Packaged Goods
CPI	Consumer Price Index
CR4	Concentration Ratio
CRAWUM	Canadian Regional Agricultural Water Use Model
EFP	Environmental Farm Plan
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FBT	Food, Beverage and Tobacco
FDI	Foreign Direct Investment
FFNHP	Functional Foods and Natural Health Products
FF	Functional Foods
GE	Government Expenditures
GDP	Gross Domestic Product
HABA	Health and Beauty Aids
MPS	Market Price Support
NAFTA	North American Free Trade Agreement
NAICS	North American Industrial Classification System
NHP	Natural Health Products
OACC	Organic Agriculture Centre of Canada
OECD	Organisation for Economic Co-operation and Development
PSE	Producer Support Estimate
R&D	Research and Development
ROW	Rest of the World
TFP	Total Factor Productivity
UAE	United Arab Emirates
USDA	United States Department of Agriculture
USDA ERS	United States Department of Agriculture Economic Research Service
WTO	World Trade Organization

The System's Components

Agriculture and Agri-Food Sector

The agriculture and agri-food sector is composed of all industries whose primary role is to produce food and agricultural products. It encompasses both primary agriculture and food, beverage and tobacco (FBT) processors.

Canadian Agriculture and Agri-Food System

The Canadian agriculture and agri-food system is a value chain of industries focussed on producing agricultural and food products. It includes agricultural input and service suppliers, primary agriculture, food, beverage and tobacco processors, food retailers/wholesalers, and foodservice establishments.

Unless otherwise noted, component stages of the agriculture and agri-food system are defined according to the North American Industrial Classification System (NAICS). A detailed listing of included industries for each component stage of the system is provided below.

Agricultural Input & Service Suppliers

Agricultural input and service suppliers are composed of the following industries as defined by NAICS:

At the 4-digit level

1151	Support Activities for Crop Production
1152	Support Activities for Animal Production
3253	Pesticide, Fertilizer and Other Agricultural Chemical Manufacturing
4171	Farm, Lawn and Garden Machinery and Equipment Wholesaler-Distributors
4183	Agricultural Supplies Wholesaler-Distributors

At the 5-digit level

33311	Agricultural Implement Manufacturing

Primary Agriculture

Primary agriculture is composed of the following industries as defined by NAICS:

At the 4-digit level

1111	Oilseed and Grain Farming
1112	Vegetable and Melon Farming
1113	Fruit and Tree Nut Farming
1114	Greenhouse, Nursery and Floriculture Production
1119	Other Crop Farming
1121	Cattle Ranching and Farming
1122	Hog and Pig Farming
1123	Poultry and Egg Production
1124	Sheep and Goat Farming
1125	Animal Aquaculture
1129	Other Animal Production

FBT Processors

FBT processors are composed of the following industries as defined by NAICS:

At the 3-digit level

311	Food Manufacturing
312	Beverage and Tobacco Product Manufacturing

The System's Components (cont'd)

Food Retailers/Wholesalers
Food retailers/wholesalers are composed of the following industries as defined by NAICS:

At the 3-digit level

411	Farm Product Wholesaler-Distributors
413	Food, Beverage and Tobacco Wholesaler-Distributors
445	Food and Beverage Stores

At the 5-digit level

41911	Farm Product Agents and Brokers
41913	Food, Beverage and Tobacco Agents and Brokers
44422	Nursery and Garden Centres
49312	Refrigerated Warehousing and Storage
49313	Farm Product Warehousing and Storage

Foodservice
Foodservice is composed of the following industries as defined by NAICS:

At the 3-digit level

722	Food Services and Drinking Places

At the 4-digit level

4542	Vending Machine Operators

Food Distribution Sector
The food distribution sector is composed of all industries whose primary role is to directly provide and service the final consumer with food and agricultural products. It encompasses food retailers/wholesalers and foodservice establishments.

Commercial Foodservice
Commercial foodservice includes full-service restaurants, limited-service restaurants, social and contract caterers and taverns.

Full-Service Restaurants include licensed and unlicensed fine dining restaurants, family restaurants and restaurant bars.

Limited-Service Restaurants include cafeterias, fast-food restaurants, food courts, and take-out and delivery establishments.

Social Caterers provide foodservice for special events.

Contract Caterers supply foodservice to airlines, railways, institutions and at recreational facilities.

Taverns are establishments primarily engaged in serving alcoholic beverages for immediate consumption, such as pubs, cocktail lounges and nightclubs.

Food-Only Processors
Food-only processors refers to manufacturers of food where food is defined in the narrowest sense (i.e., excludes beverage and tobacco products).

The System's Components (cont'd)

Non-Food Processors
Non-food processors encompasses all industrial uses of farm products other than food or animal feed consumption. It includes bioproduct manufacturers as well as the more traditional non-food industries such as leather tanneries and textile mills.

Other and Non-Commercial Foodservice
Other foodservice includes accommodation, institutional, retail and other foodservice.

Accommodation Foodservice is foodservice offered by hotels, motels and resorts.

Institutional Foodservice is foodservice in hospitals, residential care facilities, schools, prisons, factories and offices.

Retail Foodservice is foodservice operated by department stores and convenience stores.

Other Foodservice includes vending machines, movie theatres, stadiums and other seasonal or entertainment operations.

Farm Definitions

Agricultural Co-operative (Farm Co-op)
A legal business entity owned and democratically controlled equally by its members where the members have a close association with the enterprise as producers or consumers of its products or services. Agricultural co-operatives can be divided into two broad categories: agricultural service co-operatives, which provide various services or inputs to their individual farming members, and agricultural production co-operatives, where production resources (land, buildings and machinery) are pooled and members farm jointly.

Census Farm
An agricultural operation that has the intention of producing at least one of the following products: crops (field crops, tree fruits and nuts, berries or grapes, vegetables, seed); livestock (cattle, pigs, sheep, horses, exotic birds, etc.), animal products (milk or cream, eggs, wool, fur, meat), or other agricultural products (greenhouse or nursery products, Christmas trees, mushrooms, sod, honey, maple syrup products).

Communal Farms
This includes both co-operatives and other communal operations such as Hutterite colonies.

Incorporated Farm
A legal business entity separate from the persons who own, manage or operate the business. The business owners or shareholders are not personally liable for any of the debts of the company, other than the value of their investments in the company due to the legal independence of the business.

Non-family Farms
Farms organized as non-family corporations, co-operatives or other communal operations. It also includes farms held in estates or trusts.

Partnership
A type of business entity in which the business partners share with each other the profits or losses of the business, and where there is no legal distinction between the owners and the business. All partners manage the business and are personally liable for its debts except in the case of a limited partnership, where certain partners may relinquish their ability to manage the business in exchange for limited liability in the partnership's debts.

Sole Proprietorship
A type of business entity, which is owned and run by one individual and where there is no legal distinction between the owner and the business. It is a sole proprietorship in the sense that the owner has no partners.

Unincorporated Farms
Farm businesses where there is no legal distinction between the owners and the business, which include sole proprietorships and partnerships.

Trade Categories

Agriculture and Agri-Food Exports
Agriculture and agri-food exports include the export of agriculture commodities, food (excluding fish and fish products), non-alcoholic beverages (including bottled water), alcoholic beverages, tobacco products, and floriculture and nursery.

Agriculture and Agri-Food Imports
Agriculture and agri-food imports include the import of agriculture commodities, food (excluding fish and fish products), non-alcoholic beverages (including bottled water), alcoholic beverages, tobacco products and floriculture and nursery.

Trade Classification
Trade statistics for the agriculture and agri-food system are categorized according to the BICO classification system which separates products into three different groupings: bulk, intermediate, and consumer-oriented.

- **Bulk (B)**
  Products that have received little or no processing, such as, wheat, feedgrains and oilseeds.
- **Intermediate (I)**
  Products that have received some processing, but generally are not yet ready for final consumption. Examples include wheat flour, vegetable oils and slaughter animals.
- **Consumer-Oriented (CO)**
  Products that require little or no additional processing and are basically ready for human consumption. Examples include dairy products, eggs, beef, fresh fruits, and floriculture, as well as canned soups, frozen meals, baby foods, etc.

Value-Added Trade
Value-added exports/imports include exports/imports of all intermediate and consumer-oriented goods.

Government Support Categories

Government Expenditures
Government spending (at all levels) on agriculture and food processing in a year, both direct and indirect, to individuals, agencies or associations.

Major Categories of Expenditures

Development, Trade and Environment-Related Program Expenditures
Include administration and capital expenditures incurred by the government to work on regional development, marketing and trade, and environmental activities as well as grants and contributions issued by the government for work on these activities.

Operating and Capital Expenditures
Include government expenditures on general administration and management, and on policy information and statistical services.

Other Expenditures
Include government expenditures on food aid and international assistance, extension, and education as well as social program payments and tax expenditures.

Program Payment Expenditures
Include payments for income support and stabilization programs, ad hoc and cost reduction programs, agri-insurance and financing assistance programs.

Research and Inspection Expenditures
Include administration and capital expenditures incurred by the government to perform research and inspection activities, as well as grants and contributions issued by the government for work on these activities.

Storage and Freight Assistance Expenditures
Program payments for storage and freight.

Public Infrastructure
The quantity of physical capital owned by the municipal, provincial and federal governments of Canada. This includes: buildings such as schools, hospitals, libraries and post offices; engineering structures (see below), and machinery such as ambulances, buses, rapid transit cars and snow removal vehicles.

Engineering Infrastructure
This is comprised of engineering structures owned by the municipal, provincial and federal governments of Canada. It includes: highways, roads and streets, bridges, rail track, port facilities, waterworks, sewers and sewage treatment plants.

Government Support Measures

Market Price Support (MPS)
Transfers to agricultural producers from policy measures that create a gap between domestic market prices and border prices of a specific agricultural commodity.

Producer Support Estimate (PSE)
A yearly measure of policy support to farm producers. It is the sum of market price support and budgetary payments to producers, expressed as a percentage of the gross farm receipts.

> **Gross Farm Receipts**
> The value of commodity production plus the direct transfers received by producers in the current year.

Single Commodity Transfers
Transfers to agricultural producers from policy linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the transfer.

Economic and Statistical Terminology

Arable Land
FAO defines *arable land* as land under temporary crops, meadow and pasture. FAO defines *permanent cropland* as land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest (e.g., cocoa, coffee, and rubber). For Canada, *permanent cropland* is equal to the area on farms that is covered with forest and woodland.

Biomass
The term biomass refers to materials sourced from forestry, agricultural (plant, livestock products or by-products) marine, and aquaculture materials, as well as from industrial and municipal wastes.

Bioproducts
Bioproducts are products (other than food, feed, or medicine) made from renewable biological inputs (often referred to as biomass). The term includes new bio-based products as well as those traditional products which have been adapted to replace non-renewable inputs. Conventionally-made industrial products (such as lumber) are excluded.

Capital Cost Allowance
Capital cost allowance refers to the amount deducted for depreciable property for tax purposes.

Chained Dollars
A measure to express real volumes of production or expenditure by removing the distorting effects of price changes over time.

Concentration Ratio (CR4)
Concentration ratio is a measure of an industry's concentration level and expresses sales of a set number of the top firms in the industry as a percentage of total industry sales. CR4 is the acronym for the concentration ratio of the top four firms in the industry.

Constant Prices
Constant prices refers to a value from which the overall effect of a general price inflation has been removed.

Debt to Asset Ratio
Debt to asset ratio at the farm level is total debt divided by total assets.

Debt to Equity Ratio
Debt to equity ratio at the industry level is borrowings plus loans and accounts with affiliates all divided by total equity. This ratio examines the relationship of debt (loans, bonds, debentures) to shareholders' equity. It compares the relative size of debt to resources invested by the owners. It indicates the extent to which a firm relies on borrowed funds to finance its operations.

Farm Expenses
Farm expenses are estimates of farm operating expenses and represent business costs incurred by farm operators for goods and services used in the production of agricultural commodities. All expense information is on a calendar year basis. If direct rebates are paid to farmers to reduce the cost of particular inputs, then the net expense estimates are used in the preparation of net income, although both gross and net expenses may be displayed. As the objective is to produce provincial estimates of net income, flows from one farm to another are excluded from the estimates. The province can be viewed as one large farm.

Farm Family Income
Farm family income is the sum of the total income of the operator and his/her family members. It includes income from both farm and non-farm sources.

Economic and Statistical Terminology (cont'd)

Farm Market Receipts
Farm market receipts refers to cash income from the sale of agricultural commodities, but excludes direct program payments to producers.

Farm Net Worth
Farm net worth is measured as the total assets of the farm evaluated at current market value less total liabilities.

Foreign Direct Investment (FDI)
FDI refers to investment by non-residents in an enterprise where the non-residents own 10 percent or more of the ordinary shares or voting power in incorporated enterprises or the equivalent in unincorporated enterprises.

Geometric (infinite)
End-year net stock.

Gross Domestic Product (GDP)
The GDP for a country is the total unduplicated value of the goods and services produced in that country during a given period.

Gross Farm Receipts/Revenues
Gross farm receipts/revenues include cash income from the sale of agricultural commodities and direct program payments. They are compiled from census forms sent to all farms every five years.

Intra-Regional Trade
Trade between two regions in a given location. For example trade between Canadian provinces.

Labour Productivity
Labour productivity is a measure of an industry's output per hour of labour worked.

Multifactor Productivity
Multifactor productivity measures the efficiency in use of all inputs. Its growth is calculated as the rate of growth of output less the rate of growth of all inputs.

Net Cash Income
Net cash income measures farm business cash flow (farm cash receipts minus operating expenses) generated from the production of agricultural goods. Net cash income represents the amount of money available for debt repayment, investment or withdrawal by the owner.

Net Operating Income
Net operating income is a term used at the farm level, and it is the difference between gross farm revenues and total farm cash expenses.

Net Value-Added
Net value-added measures agriculture's contribution to the national economy's production of goods and services created in a particular year. It is derived by calculating the total value of agricultural sector production, including program payments, and subtracting the related costs of production (expenses on inputs, business taxes and depreciation). Net value-added is distributed to the various factors of production, including rent to non-operator landlords, interest to lenders, wages and profits.

Net Worth
Net worth corresponds to total assets minus total liabilities of the farm.

Economic and Statistical Terminology (cont'd)

Off-Farm Income

The term off-farm income is a bit misleading in that it includes wages and salaries paid to family members for work done on the farm. On average, for Canada, wages and salaries earned on the farm account for 22% of total wages and salaries earned for a farm family operating an unincorporated farm. The percentage varies by farm type and province.

Permanent Cropland

FAO defines *permanent cropland* as land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest (e.g., cocoa, coffee, and rubber). For Canada, *permanent cropland* is equal to area on farms that is covered with forest and woodland.

Profit Margin Ratio

Profit margin ratio at the industry level is calculated as operating profits divided by total operating revenues. Operating profit is the net result of the principal business activities of a firm. It is calculated before taking into account interest expense, investment income, non-recurring losses from the write-down of assets, gains or losses realized on the disposal of assets, and income tax expense. This ratio indicates management's ability to generate earnings from the principal business activities of a firm.

Quintiles

Quintiles are ranking households in ascending order of total household income and organized into five groups of equal numbers.

Quota Value

The value of a specified quantity of a supply-managed agricultural commodity, such as those in the dairy or poultry industries, which a producer has an obligation to supply.

Rate of Return on Long-Term Capital

The rate of return on long-term capital is calculated as operating income (without deducting either taxes or interest paid) divided by long-term capital where long-term capital is taken to be the sum of shareholders' equity and long-term debt.

Realized Net Farm Income

Realized net farm income is calculated as realized net market income plus government program payments.

Realized Net Market Income

Realized net market income is calculated as farm market receipts plus income-in-kind less operating expenses and depreciation.

Return on Assets

The rate of return on assets at the farm level is calculated as net operating income plus interest expense minus capital cost allowance divided by the total value of assets at cost. In the case of dairy and poultry farms, the allowance on eligible capital property for quota was also deducted.

Return on Equity

The rate of return on equity at the farm level is calculated as net operating income minus capital cost allowance divided by net worth at cost. In the case of dairy and poultry farms, the allowance on eligible capital property for quota was also deducted.

Economic and Statistical Terminology (cont'd)

Return on Equity Ratio
Return on equity ratio at the industry level is calculated as after-tax profit divided by total equity x 100. This ratio measures the level of return to the owners (investors) and it represents their measure of profitability. The earnings figure is the after-tax profit, including a deduction for interest expense (payments to lenders). It is the net profit available to the owners (investors). The ratio indicates how many cents are returned to every dollar invested by the owners.

Riparian Buffer Strip
Narrow strip of land along a watercourse designed to reduce erosion, intercept pollutants, provide habitat for wild life and address other environmental concerns.

Total Factor Productivity (TFP)
TFP is measured as output divided by all inputs (i.e., capital, labour etc.).

Value-Added Production
Value-added production refers to products that have undergone some processing.

Units of Measure

cwt	Hundredweight tonnes
cwt lw	Hundredweight tonnes live weight
kt	Kilo tonnes
kt dw	Kilo tonnes dressed weight
kt lw	Kilo tonnes live weight

Data Sources and References

Data Sources and References

Chart	**Source**
Section A	**Special Feature**
Section A1:	**Benchmarking Competitiveness**
A1.1	Global Trade Atlas
A1.2	Statistics Canada via AAFC's Trade Data Retrieval System
A1.3	Statistics Canada, CANSIM Table 002-0001 - Farm cash receipts, annual
	Statistics Canada, CANSIM Table 301-0006 - Principal statistics for manufacturing industries, by North American Industry Classification System (NAICS)
	Statistics Canada via AAFC's Trade Data Retrieval System
A1.4	Statistics Canada via AAFC's Trade Data Retrieval System
A1.5-A1.6	Food and Agriculture Organization of the United Nations (FAO) FAOStat database
A1.7	OECD, "Agricultural Policies in OECD Countries: Monitoring and Evaluation, 2009"
A1.8	Statistics Canada, CANSIM Table 383-0022 - Multifactor productivity, gross output, value-added, capital, labour and intermediate inputs at a detailed industry level, by North American Industry Classification System (NAICS)
	United States Department of Agriculture (Economic Research Service), Table 1 Indices of farm output, input, and total factor productivity for the United States 1948-2004
A1.9	Statistics Canada via AAFC's Trade Data Retrieval System
A1.10	Statistics Canada via AAFC's Trade Data Retrieval System, United States International Trade Commission Interactive Tariff and Trade DataWeb, and the United States Bureau of Economic Analysis
A1.11	Statistics Canada via AAFC's Trade Data Retrieval System
A1.12	Statistics Canada via AAFC's Trade Data Retrieval System, United States International Trade Commission Interactive Tariff and Trade DataWeb, and the United States Bureau of Economic Analysis
A1.13	Statistics Canada via AAFC's Trade Data Retrieval System
A1.14	Statistics Canada via AAFC's Trade Data Retrieval System, United States International Trade Commission Interactive Tariff and Trade DataWeb, and the United States Bureau of Economic Analysis
A1.15	Statistics Canada via AAFC's Trade Data Retrieval System
A1.16	Statistics Canada via AAFC's Trade Data Retrieval System, United States International Trade Commission Interactive Tariff and Trade DataWeb, and the United States Bureau of Economic Analysis
A1.17	Statistics Canada via AAFC's Trade Data Retrieval System
A1.18	Statistics Canada via AAFC's Trade Data Retrieval System, United States International Trade Commission Interactive Tariff and Trade DataWeb, and the United States Bureau of Economic Analysis
A1.19	Statistics Canada via AAFC's Trade Data Retrieval System
A1.20	Statistics Canada via AAFC's Trade Data Retrieval System, United States International Trade Commission Interactive Tariff and Trade DataWeb, and the United States Bureau of Economic Analysis

Data Sources and References (cont'd)

Chart	Source
A1.21-A1.22	Statistics Canada, CANSIM Table 301-0003 - Annual survey of manufactures (ASM), principal statistics by North American Industry Classification System (NAICS)
	Statistics Canada, CANSIM Table 301-0006 - Principal statistics for manufacturing industries, by North American Industry Classification System (NAICS)
	Statistics Canada, CANSIM Table 329-0038 - Industry price indexes by North American Industry Classification System (NAICS), monthly (index, 1997=100)
	United States Department of Labor, Bureau of Labor Statistics, Historical multifactor productivity measures (SIC 1948-87 linked to NAICS 1988-2008)
A1.23-A1.24	Statistics Canada, Annual Survey of Manufacturing and Logging, CANSIM Tables 301-0006 and 301-0003; U.S. Census Bureau, U.S. Annual Survey of Manufactures, various years and U.S. Economic Survey, 2007
	Statistics Canada, Annual Survey of Manufacturing and Logging, CANSIM Tables 301-0006 and 301-0003; U.S. Census Bureau, U.S. Annual Survey of Manufactures, various years and U.S. Economic Survey, 2007
A1.25	Statistics Canada, CANSIM Table 383-0022 - Multifactor productivity, gross output, value-added, capital, labour and intermediate inputs at a detailed industry level, by North American Industry Classification System (NAICS)
	United States Department of Labor, Bureau of Labor Statistics, 1987-2006 Aggregate Manufacturing and Manufacturing Industries (KLEMS)
A1.26	AAFC's Corporate Income Tax Rate Database: Canada and the Provinces, 1960-2005 via AAFC online and OECD Tax Database

Section B The Agriculture and Agri-Food System and the Canadian Economy

Section B1: GDP and Employment

Chart	Source
B1.1-B1.2	Statistics Canada, CANSIM Table 379-0017 - Gross Domestic Product (GDP) at basic prices by North American Industry Classification System (NAICS); CANSIM Table 301-0003 - Annual Survey of Manufactures *T*; CANSIM Table 301-0006 - Principal statistics for manufacturing industries, by North American Industry Classification System (NAICS), annual
B1.3-B1.4	Statistics Canada, Labour Force Survey, special tabulation for AAFC
B1.5-B1.6	Statistics Canada, CANSIM Table 379-0027 - Gross Domestic Product (GDP) at basic prices, by North American Industry Classification System; CANSIM Table 379-0025 - Gross Domestic Product (GDP) at basic prices, by North American Industry Classification System (NAICS) and province, annual Provincial GDP and special tabulations for AAFC
B1.7-B1.8	Statistics Canada, Labour Force Survey special tabulation for AAFC

Section B2: International Trade

Chart	Source
B2.1-B2.4	Global Trade Atlas
B2.5-B2.8	Statistics Canada via AAFC's Trade Data Retrieval System
B2.9-B2.10	AAFC's FARM Model Database
B2.11-B2.32	Statistics Canada via AAFC's Trade Data Retrieval System

Data Sources and References (cont'd)

Chart	**Source**
Section B3:	**Productivity, R&D and Innovation**
B3.1	Statistics Canada, CANSIM Table 383-0022 - Multifactor productivity, gross output, value-added, capital, labour and intermediate inputs at a detailed industry level, by North American Industry Classification System (NAICS)
	United States Department of Agriculture Economic Research Service, Indices of farm output, input, and total factor productivity for the United States, 1948-2006
B3.2-B3.3	Statistics Canada, CANSIM Table 383-0022 - Multifactor productivity, gross output, value-added, capital, labour and intermediate inputs at a detailed industry level, by North American Industry Classification System (NAICS)
B3.4	Sustainable Development Technologies Canada (SDTC)
B3.5-B3.6	Statistics Canada, Survey of Advanced Technology, 2007
B3.7	Statistics Canada, Catalogue No. 88-001-XIE Science Statistics vol. 32 No. 5, Industrial Research and Development, 2004-2008, September 2008 Edition
B3.8	Statistics Canada, Service Bulletin, Science Statistics, "Industrial Research and Development, 2003 to 2007", November 2007. Catalogue No. 88-001-X
	Statistics Canada, CANSIM Table 379-0023 - Gross Domestic Product (GDP) at basic price in current dollars, system of national accounts benchmark values by North American Industry Classification System (NAICS), Annual
B3.9	Pardey (2009) "Putting U.S. Agricultural R&D and Productivity Developments in Perspective" Farm Foundation Conference, Agricultural Research and Productivity for the Future, April 2009
B3.10	OECD, "Agricultural Policies in OECD Countries: Monitoring and Evaluation", 2009
B3.11-B3.15	Statistics Canada, Bioproducts Development and Production Survey, 2006
B3.16-B3.19	Statistics Canada, Functional Foods and Natural Health Products Survey, 2007
Section C	**Components of the Agriculture and Agri-Food System**
Section C1:	**Consumers**
C1.1-C1.4	Statistics Canada, CANSIM Table 380-0024 - Personal expenditure on goods and services, annual
C1.5	OECD Database
C1.6	Statistics Canada, CANSIM Table 051-0001 - v466668 Canada; Both sexes; All ages (persons) (annual, 1971 to 2008) [C892268]; CANSIM Table 380-0019 - v647037 Canada; Disposable income x 1,000,000 (annual, 1961 to 2008) [D22512]; CANSIM Table 380-0056 - GDP deflator v3860248 Canada; Implicit chain price index 2002=100; Gross Domestic Product (GDP) at market prices (annual, 1961 to 2008) [D140971]
C1.7	Statistics Canada, CANSIM Table 02-0405 - Upper income limits and income shares of total income quintiles, by economic family type, 2007 constant dollars, annual
C1.8	Statistics Canada, Catalogue No. 62-202-XIE - Spending Patterns 2007
	The Daily (Table 2), Monday December 22, 2008
C1.9-C1.10	Statistics Canada, CANSIM Table 002-0019 - Food available by major groups in Canada, annual

Data Sources and References (cont'd)

Chart	**Source**
C1.11-C1.14	AAFC's AgLink Model Database
C1.15-C1.16	Statistics Canada, CANSIM Table 326-0021 - Consumer price index (CPI), 2005 basket, annual (2002=100)
C1.17-C1.18	The Nielsen Company. "Corporate Social Responsibility: A Canadian Perspective" 2008
C1.19-C1.20	The Organic Agriculture Centre of Canada (OACC). "Retail Sales of Certified Organic Food Products, in Canada, in 2006." Complied by Anne Macey, May 2007
Section C2:	**Food Distribution (Retail/Wholesale and Foodservice)**
C2.1	Canadian Grocer, Jan/Feb 2001, National Market Survey, Canadian Food Store Sales, 2000, pg 22-31, Julia Drake
	Canadian Grocer 2009 Survey of Chains and Groups, February 2009
C2.2	Canadian Grocer Magazine, February 2009
C2.3	Statistics Canada, Quarterly Financial Statistics for Enterprises; Food and Beverage Retail Trade - special tabulation; and CANSIM Table 187-0002 - All retail trade
C2.4	Statistics Canada, CANSIM Table 080-0019 - Quarterly retail commodity survey
C2.5	The Nielsen Company
C2.6	Statistics Canada, CANSIM Table 355-0006 - Monthly survey of food services and drinking places, by North American Industry Classification System (NAICS)
	Canadian Restaurant and Foodservices Association (CRFA) InfoStats Quarterly, Quarterly Infostats for 2003.
C2.7	CRFA's Foodservice Facts 2009. 2008 - based on 0.8% bankruptcy rate and number of establishments
C2.8	CRFA, Foodservice Facts 2009 from CREST/NPD Group and ReCount
C2.9	CFRA, Foodservice Facts 2009
C2.10	Statistics Canada, CANSIM Table 180-0003 - Financial and taxation statistics for enterprises, by North American Industry Classification System (NAICS), annual
Section C3:	**Food, Beverage and Tobacco (FBT)**
C3.1	Statistics Canada, Input/Output Model 2004
C3.2	Statistics Canada, CANSIM Table 379-0017 - Gross Domestic Product (GDP) at basic price by North American Industry Classification System (NAICS), annual
C3.3	Statistics Canada, CANSIM Table 281-0024 - Employment (SEPH), unadjusted for seasonal variation, by type of employee for selected industries classified using the North American Industry Classification System (NAICS), annual (persons)
C3.4	Statistics Canada, CANSIM Table 304-0014 - Manufacturers' shipments, inventories, orders and inventory to shipment ratios, by North American Industry Classification System (NAICS), Canada, monthly
	Statistics Canada, CANSIM Table 329-0038 - Industry price indexes, by North American Industry Classification System (NAICS)
C3.5	Statistics Canada, CANSIM Table 304-0014 - Manufacturers' shipments, inventories, orders and inventory to shipment ratios, by North American Industry Classification System (NAICS), Canada, monthly

Data Sources and References (cont'd)

Chart	**Source**
C3.6-C3.7	Statistics Canada, Annual Survey of Manufactures and Logging, special tabulations
C3.8	Statistics Canada via AAFC's Trade Data Retrieval System
	Statistics Canada, Monthly Survey of Manufacturing, via the Conference Board of Canada
C3.9	Statistics Canada via AAFC's Trade Data Retrieval System
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C3.10-C3.13	Statistics Canada via AAFC's Trade Data Retrieval System
C3.14	Statistics Canada, CANSIM Table 301-0006 - Principal statistics for manufacturing industries, by North American Industry Classification System (NAICS), annual
C3.15	Statistics Canada, CANSIM Table 330-0006 - Raw materials price indexes, monthly (index, 1997=100)
C3.16	Statistics Canada, Survey of Employment, Payrolls and Hours (SEPH) special tabulation
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C3.18	Statistics Canada, CANSIM Table 031-0002 - Flows and stocks of fixed non- residential capital, by North American Industry Classification System (NAICS), annual (dollars)
C3.19	Statistics Canada, CANSIM Table 031-0002 - Flows and stocks of fixed non-residential capital, by North American Industry Classification System (NAICS) - and asset, Canada, provinces and territories, annual (dollars x 1,000,000)
C3.20-C3.21	Statistics Canada, Quarterly Survey of Financial Statistics for Enterprises special tabulation
C3.22-C3.24	Statistics Canada, CANSIM Table 376-0052 - International investment position, Canadian direct investment abroad and foreign direct investment in Canada, by North American Industry Classification System (NAICS) and region, annual (dollars) via Conference Board of Canada
Section C4:	**Primary Agriculture**
C4.1	Statistics Canada Input/Output Model
C4.2	Statistics Canada, Census of Agriculture, various years
C4.3	Statistics Canada, 2006 Census of Agriculture
C4.4-C4.5	Statistics Canada, CANSIM, Table 002-0001 - Farm Cash Receipts
C4.6	Canadian Wheat Board and University of Guelph, Ridgetown College
C4.7	Canfax annual report
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	AAFC's Red Meat Market Information
C4.8-C4.9	Statistics Canada, CANSIM, Table 002-0001 - Farm Cash Receipts
C4.10	Statistics Canada, CANSIM Table 002-0005 - Farm operating expenses and depreciation charges, annual
C4.11	Statistics Canada, Catalogue No. 21-011-XIE - Agriculture Economic Statistics, November 2008
C4.12	Statistics Canada, CANSIM, Table 002-0004 - Agriculture value added account, annual

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Chart	Source
C4.13	Statistics Canada, Catalogue No. 21-017-XIE - Agriculture Economic Statistics, November 2008
C4.14-C4.15	Statistics Canada, 2006 Census of Agriculture
C4.16-C4.18	Statistics Canada, Whole Farm Data Project and AAFC's Canadian Agricultural Dynamic Micro-Simulation Model Database
C4.19-C4.20	Statistics Canada, Corporate Taxfiler Database, various years
C4.21-C4.25	Statistics Canada and AAFC, Farm Financial Survey, various years
C4.26	Statistics Canada and AAFC, 2008 Farm Financial Survey
C4.27-C4.28	Statistics Canada, Corporate Taxfiler Database, various years
Section C5:	**Agricultural Input and Service Suppliers**
C5.1	Agriculture and Agri-Food Canada (AAFC)
C5.2	Statistics Canada, CANSIM Table 002-0005 - Farm operating expenses and depreciation charges, annual (dollars)
C5.3	Statistics Canada, CANSIM Table 002-0022 - Farm Product Price Index , annual (index, 1997=100) and CANSIM Table 328-0014 - Farm Input Price Index, annual (index, 1992=100); Table 328-0001 - Farm Input Price Index, quarterly (index, 1986=100)
C5.4	Statistics Canada, CANSIM Table 002-0005 - Farm operating expenses and depreciation charges, annual (dollars)
C5.5	Natural Resources Canada and Ridgetown College, University of Guelph
C5.6	Statistics Canada, CANSIM Table 328-0014 (index 1992=100) - Farm input price index, annual (index, 1992=100)
C5.7-C5.8	The Thomsen Corporation, Statistics Canada, the Canadian Fetilizer Institute and the International Fertilizer Development Centre
C5.9	Ridgetown College, University of Guleph, and The Chicago Board of Trade
	Statistics Canada, Catalogue No. 23-012-XIE - Cattle Statistics, August 2009
C5.10	Canfax annual report
Section C6:	**Natural Resource Use and Environmental Impacts**
C6.1	Natural Resources Canada, Canada's Forest Inventory, CanFi 2001
C6.2	Gierman, D.M. 1977 Rural to Urban Land Conversion. Occasional Paper No. 16. Lands Directorate, Ottawa
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Chart	**Source**
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	Hofmann, N., Filoso, G. and Schofield, M. 2005 The loss of dependable agricultural land in Canada. Rural and Small Town Canada Analysis Bulletin. Statistics Canada Catalogue No. 21-006-XIE. Vol. 6, No. 1
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C6.5	Statistics Canada, 2006 Census of Agriculture
C6.6	Statistics Canada, 2006 Census of Agriculture, farm data and farm operator tables
C6.7	Statistics Canada, Census of Agriculture, various years
C6.8	Statistics Canada, 2001 and 2006 Censuses of Agriculture
C6.9	Huffman, T., and D. Coote, Soil Cover in Canada, 1981-2006. In Eilers, W., R. Mackay, L. Graham and A. Lefebvre (eds.) 2010 Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series - Report #3, AAFC
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C6.11	Food and Agriculture Organization of the United Nations (FAO)'s AQUASTAT database
C6.12	AAFC's Canadian Regional Agriculture Water Use Model (CRAWUM)
C6.13-C6.14	Statistics Canada, 2006 Census of Agriculture
C6.15	Statistics Canada, Farm Environmental Management Survey, 2006 and AAFC calculations
C6.16	Statistics Canada, Farm Environmental Management Survey, 2001 and 2006 and AAFC calculations
	Canadian Fertilizer Institute
C6.17 - C6.18	Statistics Canada, Farm Environmental Management Survey, 2006 and AAFC calculations

Section D Government and the Agriculture and Agri-Food Sector

Section D1: Government Expenditures

D1.1-D1.8	AAFC's Farm Income, Financial Conditions and Government Assistance - Databook, Table C.1 (April 2009 update)
D1.9	AAFC's Corporate Income Tax Rate Database: Canada and the Provinces, 1960-2005 via AAFC Online

Data Sources and References (cont'd)

Chart	Source
D1.10-D1.12	Statistics Canada, CANSIM Table 031-0002 - Flows and stocks of fixed non-residential capital, by North American Industry Classification System (NAICS), annual
Section D2:	**Producer Support Estimates (PSE) and Agricultural Policies in Canada and Other Countries**
D2.1	OECD, Trade and Agriculture Directorate, Producer and Consumer Support Estimates, OECD Database 1986-2007
D2.2-D2.4	OECD, "Agriculture Policies in OECD Countries: Monitoring and Evaluation", 2009